OVR ITALY

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SANTA BARBARA.

OUR ITALY

BY CHARLES DUDLEY WARNER

Author of Their Pilgrimage, Studies in the South and West, A Little Journey in the World . . With Many Illustrations

NEW YORK

HARPER & BROTHERS, FRANKLIN SQUARE

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OUR ITALY.

CHAPTER I.

HOW OUR ITALY IS MADE.

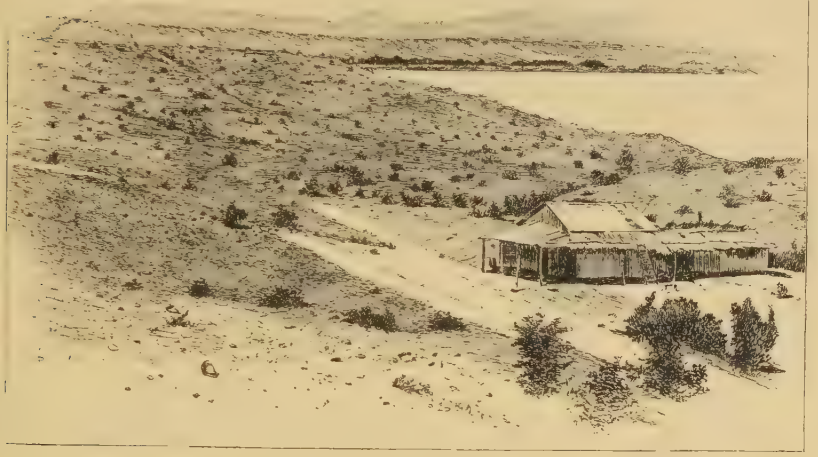
The traveller who descends into Italy by an Alpine pass never forgets the surprise and delight of the transition. In an hour he is whirled down the slopes from the region of eternal snow to the verdure of spring or the ripeness of summer. Suddenly—it may be at a turn in the road—winter is left behind; the plains of Lombardy are in view; the Lake of Como or Maggiore gleams below; there is a tree; there is an orchard; there is a garden; there is a villa overrun with vines; the singing of birds is heard; the air is gracious; the slopes are terraced, and covered with vineyards; great sheets of silver sheen in the landscape mark the growth of the olive; the dark green orchards of oranges and lemons are starred with gold; the lusty fig, always a temptation as of old, leans invitingly over the stone wall; everywhere are bloom and color under the blue sky; there are shrines by the way-side, chapels on the hill; one hears the melodious bells, the call of the vine-dressers, the laughter of girls.

The contrast is as great from the Indians of the Mojave Desert, two types of which are here given, to the vine-dressers of the Santa Ana Valley.

Italy is the land of the imagination, but the sensation on first beholding it from the northern heights, aside from its associations of romance and poetry, can be repeated in our own land by whoever will cross the burning desert of Colorado, or the savage wastes of the Mojave wilderness of stone and sage-brush, and come suddenly, as he must come by train, into the bloom of Southern California. Let us study a little the physical conditions.

The bay of San Diego is about three hundred miles east of San Francisco. The coast line runs south-east, but at Point Conception it turns sharply east, and then curves south-easterly about two hundred and fifty miles to the Mexican coast boundary, the extreme south-west limits of the United States, a few miles below San Diego. This coast, defined by these two limits, has a southern exposure on the sunniest of oceans. Off this coast, south of Point Conception, lies a chain of islands, curving in position in conformity with the shore, at a distance of twenty to seventy miles from the main-land. These islands are San Miguel, Santa Rosa, Santa Cruz, Anacapa, Santa Barbara, San Nicolas, Santa Catalina, San Clemente, and Los Coronados, which lie in Mexican waters. Between this chain of islands and the main-land is Santa Barbara Channel, flowing northward. The great ocean current from the north flows past Point Conception like a mill-race, and makes a suction, or a sort of eddy. It approaches nearer the coast in Lower California, where the return current,

which is much warmer, flows northward and westward along the curving shore. The Santa Barbara Channel, which may be called an arm of the Pacific, flows by



MOJAVE DESERT.

many a bold point and lovely bay, like those of San Pedro, Redondo, and Santa Monica; but it has no secure harbor, except the magnificent and unique bay of San Diego.

The southern and western boundary of Southern California is this mild Pacific sea, studded with rocky and picturesque islands. The northern boundary of this region is ranges of lofty mountains, from five thousand to eleven thousand feet in height, some of them always snow-clad, which run eastward from Point Conception nearly to the Colorado Desert. They are parts of the Sierra Nevada range, but they take

various names, Santa Ynes, San Gabriel, San Bernardino, and they are spoken of all together as the Sierra Madre. In the San Gabriel group, "Old Baldy" lifts its snow-peak over nine thousand feet, while the San Bernardino "Grayback" rises over eleven thousand feet above the sea. Southward of this, running down into San Diego County, is the San Jacinto range, also snow-clad; and eastward the land falls rapidly away into the Salt Desert of the Colorado, in which is a depression about three hundred feet below the Pacific.

The Point Arguilles, which is above Point Conception, by the aid of the outlying islands, deflects the cold current from the north off the coast of Southern California, and the mountain ranges from Point Conception east divide the State of California into two climatic regions, the southern having more warmth, less rain and fog, milder winds, and less variation of daily temperature than the climate of Central California to the north.* Other striking climatic conditions are produced by the daily interaction of the Pacific Ocean and the Colorado Desert, infinitely diversified in minor particulars by the exceedingly broken character of the region—a jumble of bare mountains, fruitful foot-hills, and rich valleys. It would be

* For these and other observations upon physical and climatic conditions I am wholly indebted to Dr. P. C. Remondino and Mr. T. S. Van Dyke, of San Diego, both scientific and competent authorities.

only from a balloon that one could get an adequate idea of this strange land.

The United States has here, then, a unique corner of the earth, without its like in its own vast territory, and unparalleled, so far as I know, in the world. Shut off from sympathy with external conditions by the giant mountain ranges and the desert wastes, it has its own climate unaffected by cosmic changes. Except a tidal wave from Japan, nothing would seem to be able to affect or disturb it. The whole of Italy feels more or less the climatic variations of the rest of Europe. All our Atlantic coast, all our interior basin from Texas to Manitoba, is in climatic sympathy. Here is a region larger than New England which manufactures its own weather and refuses to import any other.

With considerable varieties of temperature according to elevation or protection from the ocean breeze, its climate is nearly, on the whole, as agreeable as that of the Hawaiian Islands, though pitched in a lower key, and with greater variations between day and night. The key to its peculiarity, aside from its southern exposure, is the Colorado Desert. That desert, waterless and treeless, is cool at night and intolerably hot in the daytime, sending up a vast column of hot air, which cannot escape eastward, for Arizona manufactures a like column. It flows high above the mountains westward till it strikes the Pacific and parts with its heat,

creating an immense vacuum which is filled by the air from the coast flowing up the slope and over the range, and plunging down 6000 feet into the desert. "It is easy to understand," says Mr. Van Dyke, making his observations from the summit of the Cuyamaca, in San Diego County, 6500 feet above the sea-level, "how land thus rising a mile or more in fifty or sixty miles, rising away from the coast, and falling off abruptly a mile deep into the driest and hottest of American deserts, could have a great variety of climates. . . . Only ten miles away on the east the summers are the hottest, and only sixty miles on the west the coolest known in the United States (except on this coast), and between them is every combination that mountains and valleys can produce. And it is easy to see whence comes the sea-breeze, the glory of the California summer. It is passing us here, a gentle breeze of six or eight miles an hour. It is flowing over this great ridge directly into the basin of the Colorado Desert, 6000 feet deep, where the temperature is probably 120°, and perhaps higher. For many leagues each side of us this current is thus flowing at the same speed, and is probably half a mile or more in depth. About sundown, when the air on the desert cools and descends, the current will change and come the other way, and flood these western slopes with an air as pure as that of the Sahara and nearly as dry.

"The air, heated on the western slopes by the sea, would by rising produce considerable suction, which could be filled only from the sea, but that alone would not make the sea-breeze as dry as it is. The principal suction is caused by the rising of heated air from the great desert. . . . On the top of old Grayback (in San

BIRD'S-EYE VIEW OF RIVERSIDE.

Bernardino) one can feel it [this breeze] setting westward, while in the cañons, 6000 feet below, it is blowing eastward. . . . All over Southern California the conditions of this breeze are about the same, the great Mojave Desert and the valley of the San Joaquin above operating in the same way, assisted by interior

plains and slopes. Hence these deserts, that at first seem to be a disadvantage to the land, are the great conditions of its climate, and are of far more value than if they were like the prairies of Illinois. Fortunately they will remain deserts forever. Some parts will in time be reclaimed by the waters of the Colorado River, but wet spots of a few hundred thousand acres would be too trifling to affect general results, for millions of acres of burning desert would forever defy all attempts at irrigation or settlement."

This desert-born breeze explains a seeming anomaly in regard to the humidity of this coast. I have noticed on the sea-shore that salt does not become damp on the table, that the Portuguese fishermen on Point Loma are drying their fish on the shore, and that while the hydrometer gives a humidity as high as seventy-four, and higher at times, and fog may prevail for three or four days continuously, the fog is rather "dry," and the general impression is that of a dry instead of the damp and chilling atmosphere such as exists in foggy times on the Atlantic coast.

"From the study of the origin of this breeze we see," says Mr. Van Dyke, "why it is that a wind coming from the broad Pacific should be drier than the dry land-breezes of the Atlantic States, causing no damp walls, swelling doors, or rusting guns, and even on the coast drying up, without salt or soda, meat cut in strips an inch thick and fish much thicker."

At times on the coast the air contains plenty of moisture, but with the rising of this breeze the moisture decreases instead of increases. It should be said also that this constantly returning current of air is

always pure, coming in contact nowhere with marshy or malarious influences nor any agency injurious to health. Its character causes the whole coast from Santa Barbara to San Diego to be an agreeable place of residence or resort summer and winter, while its daily inflowing tempers the heat of the far inland valleys to a delightful atmosphere in the shade even in midsummer, while cool nights are everywhere the rule. The greatest surprise of the traveller is that a region which is in perpetual bloom and fruitage, where semi-tropical fruits mature in perfection, and the most delicate flowers dazzle the eye with color the winter through, should have on the whole a low temperature, a climate never enervating, and one requiring a dress of woollen in every month.

CHAPTER II.

OUR CLIMATIC AND COMMERCIAL MEDITERRANEAN.

Winter as we understand it east of the Rockies does not exist. I scarcely know how to divide the seasons. There are at most but three. Spring may be said to begin with December and end in April; summer, with May (whose days, however, are often cooler than those of January), and end with September; while October and November are a mild autumn, when nature takes a partial rest, and the leaves of the deciduous trees are gone. But how shall we classify a climate in which the strawberry (none yet in my experience equal to the Eastern berry) may be eaten in every month of the year, and ripe figs may be picked from July to March? What shall I say of a frost (an affair of only an hour just before sunrise) which is hardly anywhere severe enough to disturb the delicate heliotrope, and even in the deepest valleys where it may chill the orange, will respect the bloom of that fruit on contiguous ground fifty or a hundred feet higher? We boast about many things in the United States, about our blizzards and our cyclones, our inundations and our areas of low pressure, our hottest and our coldest places in the world, but what can we say for this little corner which is practically frostless, and yet never had a sunstroke, knows nothing of thunder-storms and lightning, never experienced a cyclone,

which is so warm that the year round one is tempted to live out-of-doors, and so cold that woollen garments are never uncomfortable? Nature here, in this protected and petted area, has the knack of being genial without being enervating, of being stimulating without "bracing" a person into the tomb. I think it conducive to equanimity of spirit and to longevity to sit in an orange grove and eat the fruit and inhale the fragrance of it while gazing upon a snow-mountain.

SCENE IN SAN BERNARDINO.

This southward-facing portion of California is irrigated by many streams of pure water rapidly falling from the mountains to the sea. The more important are the Santa Clara, the Los Angeles and San Gabriel, the Santa Ana, the Santa Margarita, the San Luis Rey, the San Bernardo, the San Diego, and, on the Mexican border, the Tia Juana. Many of them go dry or flow underground in the summer months (or, as the Californians say, the bed of the river gets on top), but most of them can be used for artificial irriga-

tion. In the lowlands water is sufficiently near the surface to moisten the soil, which is broken and cultivated; in most regions good wells are reached at a small depth, in others artesian-wells spout up abundance of water, and considerable portions of the regions best known for fruit are watered by irrigating ditches and pipes supplied by ample reservoirs in the mountains. From natural rainfall and the sea moisture the mesas and hills, which look arid before ploughing, produce large crops of grain when cultivated after the annual rains, without artificial watering.

Southern California has been slowly understood even by its occupants, who have wearied the world with boasting of its productiveness. Originally it was a vast cattle and sheep ranch. It was supposed that the land was worthless except for grazing. Held in princely ranches of twenty, fifty, one hundred thousand acres, in some cases areas larger than German principalities, tens of thousands of cattle roamed along the watercourses and over the mesas, vast flocks of sheep cropped close the grass and trod the soil into hard-pan. The owners exchanged cattle and sheep for corn, grain, and garden vegetables; they had no faith that they could grow cereals, and it was too much trouble to procure water for a garden or a fruit orchard. It was the firm belief that most of the rolling mesa land was unfit for cultivation, and that neither forest nor fruit trees would grow without irrigation. Between Los Angeles and Redondo Beach is a ranch of 35,000 acres. Seventeen years ago it was owned by a Scotchman, who used the whole of it as a sheep ranch. In selling it to the present owner he warned him not to waste time by attempting to farm it; he

SCENES IN MONTECITO AND LOS ANGELES.

himself raised no fruit or vegetables, planted no trees, and bought all his corn, wheat, and barley. The purchaser, however, began to experiment. He planted trees and set out orchards which grew, and in a couple of years he wrote to the former owner that he had 8000 acres in fine wheat. To say it in a word, there is scarcely an acre of the tract which is not highly productive in barley, wheat, corn, potatoes, while considerable parts of it are especially adapted to the English walnut and to the citrus fruits.

On this route to the sea the road is lined with gardens. Nothing could be more unpromising in appearance than this soil before it is ploughed and pulverized by the cultivator. It looks like a barren waste. We passed a tract that was offered three years ago for twelve dollars an acre. Some of it now is rented to Chinamen at thirty dollars an acre; and I saw one field of two acres off which a Chinaman has sold in one season $750 worth of cabbages.

The truth is that almost all the land is wonderfully productive if intelligently handled. The low ground has water so near the surface that the pulverized soil will draw up sufficient moisture for the crops; the mesa, if sown and cultivated after the annual rains, matures grain and corn, and sustains vines and fruit-trees. It is singular that the first settlers should never have discovered this productiveness. When it became apparent—that is, productiveness without artificial watering — there spread abroad a notion that irrigation generally was not needed. We shall have occasion to speak of this more in detail, and I will now only say, on good authority, that while cultivation, not to keep down the weeds only, but to keep the soil stirred and

prevent its baking, is the prime necessity for almost all land in Southern California, there are portions where irrigation is always necessary, and there is no spot where the yield of fruit or grain will not be quadrupled by judicious irrigation. There are places where irrigation is excessive and harmful both to the quality and quantity of oranges and grapes.

The history of the extension of cultivation in the last twenty and especially in the past ten years from the foot-hills of the Sierra Madre in Los Angeles and San Bernardino counties southward to San Diego is very curious. Experiments were timidly tried. Every acre of sand and sage-bush reclaimed southward was supposed to be the last capable of profitable farming or fruit-growing. It is unsafe now to say of any land that has not been tried that it is not good. In every valley and on every hill-side, on the mesas and in the sunny nooks in the mountains, nearly anything will grow, and the application of water produces marvellous results. From San Bernardino and Redlands, Riverside, Pomona, Ontario, Santa Anita, San Gabriel, Pasadena, all the way to Los Angeles, is almost a continuous fruit garden, the green areas only emphasized by wastes yet unreclaimed; a land of charming cottages, thriving towns, hospitable to the fruit of every clime; a land of perpetual sun and ever-flowing breeze, looked down on by purple mountain ranges tipped here and there with enduring snow. And what is in progress here will be seen before long in almost every part of this wonderful land, for conditions of soil and climate are essentially everywhere the same, and capital is finding out how to store in and bring from the fastnesses of the mountains rivers of clear

FAN-PALM, LOS ANGELES.

water taken at such elevations that the whole arable surface can be irrigated. The development of the country has only just begun.

If the reader will look upon the map of California he will see that the eight counties that form Southern California—San Luis Obispo, Santa Barbara, Ventura, Kern, Los Angeles, San Bernardino, Orange, and San Diego—appear very mountainous. He will also notice that the eastern slopes of San Bernardino and San Diego are deserts. But this is an immense area. San Diego County alone is as large as Massachusetts, Con-

necticut, and Rhode Island combined, and the amount of arable land in the valleys, on the foot-hills, on the rolling mesas, is enormous, and capable of sustaining a dense population, for its fertility and its yield to the acre under cultivation are incomparable. The reader will also notice another thing. With the railroads now built and certain to be built through all this diversified region, round from the Santa Barbara Mountains to the San Bernardino, the San Jacinto, and

YUCCA-PALM, SANTA BARBARA.

down to Cuyamaca, a ride of an hour or two hours brings one to some point on the 250 miles of sea-coast —a sea-coast genial, inviting in winter and summer, never harsh, and rarely tempestuous like the Atlantic shore.

Here is our Mediterranean! Here is our Italy! It is a Mediterranean without marshes and without malaria, and it does not at all resemble the Mexican Gulf, which we have sometimes tried to fancy was like the classic sea that laves Africa and Europe. Nor is this region Italian in appearance, though now and then some bay with its purple hills running to the blue sea, its surrounding mesas and cañons blooming in semi-tropical luxuriance, some conjunction of shore and mountain, some golden color, some white light and sharply defined shadows, some refinement of lines, some poetic tints in violet and ashy ranges, some ultramarine in the sea, or delicate blue in the sky, will remind the traveller of more than one place of beauty in Southern Italy and Sicily. It is a Mediterranean with a more equable climate, warmer winters and cooler summers, than the North Mediterranean shore can offer; it is an Italy whose mountains and valleys give almost every variety of elevation and temperature.

But it is our commercial Mediterranean. The time is not distant when this corner of the United States will produce in abundance, and year after year without failure, all the fruits and nuts which for a thousand years the civilized world of Europe has looked to the Mediterranean to supply. We shall not need any more to send over the Atlantic for raisins, English walnuts, almonds, figs, olives, prunes, oranges, lemons, limes, and a variety of other things which we know

commercially as Mediterranean products. We have all this luxury and wealth at our doors, within our limits. The orange and the lemon we shall still bring from many places; the date and the pineapple and the banana will never grow here except as illustrations of the climate, but it is difficult to name any fruit of the temperate and semi-tropic zones that Southern California cannot be relied on to produce, from the guava to the peach.

It will need further experiment to determine what are the more profitable products of this soil, and it will take longer experience to cultivate them and send them to market in perfection. The pomegranate and the apple thrive side by side, but the apple is not good here unless it is grown at an elevation where frost is certain and occasional snow may be expected. There is no longer any doubt about the peach, the nectarine, the pear, the grape, the orange, the lemon, the apricot, and so on; but I believe that the greatest profit will be in the products that cannot be grown elsewhere in the United States—the products to which we have long given the name of Mediterranean—the olive, the fig, the raisin, the hard and soft shell almond, and the walnut. The orange will of course be a staple, and constantly improve its reputation as better varieties are raised, and the right amount of irrigation to produce the finest and sweetest is ascertained.

It is still a wonder that a land in which there was no indigenous product of value, or to which cultivation could give value, should be so hospitable to every sort of tree, shrub, root, grain, and flower that can be brought here from any zone and temperature, and that many of these foreigners to the soil grow here

with a vigor and productiveness surpassing those in their native land. This bewildering adaptability has misled many into unprofitable experiments, and the very rapidity of growth has been a disadvantage. The land has been advertised by its monstrous vegetable productions, which are not fit to eat, and but testify to the fertility of the soil; and the reputation of its fruits, both deciduous and citrus, has suffered by specimens sent to Eastern markets whose sole recommendation was size. Even in the vineyards and orange orchards quality has been sacrificed to quantity. Nature here responds generously to every encouragement, but it cannot be forced without taking its revenge in the return of inferior quality. It is just as true of Southern California as of any other land, that hard work and sagacity and experience are necessary to successful horticulture and agriculture, but it is undeniably true that the same amount of well-directed industry upon a much smaller area of land will produce more return than in almost any other section of the United States. Sensible people do not any longer pay much attention to those tempting little arithmetical sums by which it is demonstrated that paying so much for ten acres of barren land, and so much for planting it with vines or oranges, the income in three years will be a competence to the investor and his family. People do not spend much time now in gaping over abnormal vegetables, or trying to convince themselves that wines of every known variety and flavor can be produced within the limits of one flat and well-watered field. Few now expect to make a fortune by cutting arid land up into twenty-feet lots, but notwithstanding the extravagance of re-

MAGNOLIA AVENUE, RIVERSIDE.

cent speculation, the value of arable land has steadily appreciated, and is not likely to recede, for the return from it, either in fruits, vegetables, or grain, is demonstrated to be beyond the experience of farming elsewhere.

Land cannot be called dear at one hundred or one thousand dollars an acre if the annual return from it is fifty or five hundred dollars. The climate is most agreeable the year through. There are no unpleasant months, and few unpleasant days. The eucalyptus grows so fast that the trimmings from the trees of a small grove or highway avenue will in four or five years furnish a family with its firewood. The strong, fattening alfalfa gives three, four, five, and even six harvests a year. Nature needs little rest, and, with the encouragement of water and fertilizers, apparently none. But all this prodigality and easiness of life detracts a little from ambition. The lesson has been slowly learned, but it is now pretty well conned, that hard work is as necessary here as elsewhere to thrift and independence. The difference between this and many other parts of our land is that nature seems to work with a man, and not against him.

CHAPTER III.

EARLY VICISSITUDES. — PRODUCTIONS. — SANITARY CLIMATE.

Southern California has rapidly passed through varied experiences, and has not yet had a fair chance to show the world what it is. It had its period of romance, of pastoral life, of lawless adventure, of crazy speculation, all within a hundred years, and it is just now entering upon its period of solid, civilized development. A certain light of romance is cast upon this coast by the Spanish voyagers of the sixteenth century, but its history begins with the establishment of the chain of Franciscan missions, the first of which was founded by the great Father Junipero Serra at San Diego in 1769. The fathers brought with them the vine and the olive, reduced the savage Indians to industrial pursuits, and opened the way for that ranchero and adobe civilization which, down to the coming of the American, in about 1840, made in this region the most picturesque life that our continent has ever seen. Following this is a period of desperado adventure and revolution, of pioneer State-building; and then the advent of the restless, the cranky, the invalid, the fanatic, from every other State in the Union. The first experimenters in making homes seem to have fancied that they had come to a ready-made elysium—the idle man's heaven. They seem to

have brought with them little knowledge of agriculture or horticulture, were ignorant of the conditions of success in this soil and climate, and left behind the good industrial maxims of the East. The result was a period of chance experiment, one in which extravagant expectation and boasting to some extent took the place of industry. The imagination was heated by the novelty of such varied and rapid productiveness. Men's minds were inflamed by the apparently limitless possibilities. The invalid and the speculator thronged the transcontinental roads leading thither. In this condition the frenzy of 1886–87 was inevitable. I saw something of it in the winter of 1887. The scenes then daily and commonplace now read like the wildest freaks of the imagination.

The bubble collapsed as suddenly as it expanded. Many were ruined, and left the country. More were merely ruined in their great expectations. The speculation was in town lots. When it subsided it left the climate as it was, the fertility as it was, and the value of arable land not reduced. Marvellous as the boom was, I think the present recuperation is still more wonderful. In 1890, to be sure, I miss the bustle of the cities, and the creation of towns in a week under the hammer of the auctioneer. But in all the cities, and most of the villages, there has been growth in substantial buildings, and in the necessities of civic life—good sewerage, water supply, and general organization; while the country, as the acreage of vines and oranges, wheat and barley, grain and corn, and the shipments by rail testify, has improved more than at any other period, and commerce is beginning to feel the impulse of a genuine prosperity,

based upon the intelligent cultivation of the ground. School-houses have multiplied; libraries have been founded; many "boom" hotels, built in order to sell city lots in the sage-brush, have been turned into schools and colleges.

There is immense rivalry between different sections. Every Californian thinks that the spot where his house stands enjoys the best climate and is the most fertile in the world; and while you are with him you think he is justified in his opinion; for this rivalry is generally a wholesome one, backed by industry. I do not mean to say that the habit of tall talk is altogether lost. Whatever one sees he is asked to believe is the largest and best in the world. The gentleman of the whip who showed us some of the finest places in Los Angeles—places that in their wealth of flowers and semi-tropical gardens would rouse the enthusiasm of the most jaded traveller — was asked whether there were any finer in the city. "Finer? Hundreds of them;" and then, meditatively and regretfully, "I should not dare to show you the best." The semi-ecclesiastical custodian of the old adobe mission of San Gabriel explained to us the twenty portraits of apostles on the walls, all done by Murillo. As they had got out of repair, he had them all repainted by the best artist. "That one," he said, simply, "cost ten dollars. It often costs more to repaint a picture than to buy an original."

The temporary evils in the train of the "boom" are fast disappearing. I was told that I should find the country stagnant. Trade, it is true, is only slowly coming in, real-estate deals are sleeping, but in all avenues of solid prosperity and productiveness the

AVENUE LOS ANGELES.

country is the reverse of stagnant. Another misapprehension this visit is correcting. I was told not to visit Southern California at this season on account of the heat. But I have no experience of a more delightful summer climate than this, especially on or near the coast.

In secluded valleys in the interior the thermometer rises in the daytime to 85°, 90°, and occasionally 100°, but I have found no place in them where there was not daily a refreshing breeze from the ocean, where the dryness of the air did not make the heat seem much less than it was, and where the nights were not agreeably cool. My belief is that the summer climate of Southern California is as desirable for pleasure-seekers, for invalids, for workmen, as its winter climate. It seems to me that a coast temperature 60° to 75°, stimulating, without harshness or dampness, is about the perfection of summer weather. It should be said, however, that there are secluded valleys which become very hot in the daytime in midsummer, and intolerably dusty. The dust is the great annoyance everywhere. It gives the whole landscape an ashy tint, like some of our Eastern fields and waysides in a dry August. The verdure and the wild flowers of the rainy season disappear entirely. There is, however, some picturesque compensation for this dust and lack of green. The mountains and hills and great plains take on wonderful hues of brown, yellow, and red.

I write this paragraph in a high chamber in the Hotel del Coronado, on the great and fertile beach in front of San Diego. It is the 2d of June. Looking southward, I see the great expanse of the Pacific

Ocean, sparkling in the sun as blue as the waters at Amalfi. A low surf beats along the miles and miles of white sand continually, with the impetus of far-off seas and trade-winds, as it has beaten for thousands of years, with one unending roar and swish, and occasional shocks of sound as if of distant thunder on the shore. Yonder, to the right, Point Loma stretches its sharp and rocky promontory into the ocean, purple in the sun, bearing a light-house on its highest elevation. From this signal, bending in a perfect crescent, with a silver rim, the shore sweeps around twenty-five miles to another promontory running down beyond Tia Juana to the Point of Rocks, in Mexican territory. Directly in front—they say eighteen miles away, I think five sometimes, and sometimes a hundred—lie the islands of Coronado, named, I suppose, from the old Spanish adventurer Vasques de Coronado, huge bulks of beautiful red sandstone, uninhabited and barren, becalmed there in the changing blue of sky and sea, like enormous mastless galleons, like degraded icebergs, like Capri and Ischia. They say that they are stationary. I only know that when I walk along the shore towards Point Loma they seem to follow, until they lie opposite the harbor entrance, which is close by the promontory; and that when I return, they recede and go away towards Mexico, to which they belong. Sometimes, as seen from the beach, owing to the difference in the humidity of the strata of air over the ocean, they seem smaller at the bottom than at the top. Occasionally they come quite near, as do the sea-lions and the gulls, and again they almost fade out of the horizon in a violet light. This morning

IN THE GARDEN AT SANTA BARBARA MISSION.

they stand away, and the fleet of white-sailed fishing-boats from the Portuguese hamlet of La Playa, within the harbor entrance, which is dancing off Point Loma, will have a long sail if they pursue the barracuda to those shadowy rocks.

We crossed the bay the other day, and drove up a wild road to the height of the promontory, and along its narrow ridge to the light-house. This site commands one of the most remarkable views in the accessible civilized world, one of the three or four really great prospects which the traveller can recall, astonishing in its immensity, interesting in its peculiar details. The general features are the great ocean, blue, flecked with sparkling, breaking wavelets, and the wide, curving coast-line, rising into mesas, foot-hills, ranges on ranges of mountains, the faintly seen snow-peaks of San Bernardino and San Jacinto to the Cuyamaca and the flat top of Table Mountain in Mexico. Directly under us on one side are the fields of kelp, where the whales come to feed in winter; and on the other is a point of sand on Coronado Beach, where a flock of pelicans have assembled after their day's fishing, in which occupation they are the rivals of the Portuguese. The perfect crescent of the ocean beach is seen, the singular formation of North and South Coronado Beach, the entrance to the harbor along Point Loma, and the spacious inner bay, on which lie San Diego and National City, with lowlands and heights outside sprinkled with houses, gardens, orchards, and vineyards. The near hills about this harbor are varied in form and poetic in color, one of them, the conical San Miguel, constantly recalling Vesuvius. Indeed, the near view, in

color, vegetation, and forms of hills and extent of arable land, suggests that of Naples, though on analysis it does not resemble it. If San Diego had half a million of people it would be more like it; but the Naples view is limited, while this stretches away to the great mountains that overlook the Colorado Desert. It is certainly one of the loveliest prospects in the world, and worth long travel to see.

Standing upon this point of view, I am reminded again of the striking contrasts and contiguous different climates on the coast. In the north, of course not visible from here, is Mount Whitney, on the borders of Inyo County and of the State of Nevada, 15,086 feet above the sea, the highest peak in the United States, excluding Alaska. South of it is Grayback, in the San Bernardino range, 11,000 feet in altitude, the highest point above its base in the United States. While south of that is the depression in the Colorado Desert in San Diego County, about three hundred feet below the level of the Pacific Ocean, the lowest land in the United States. These three exceptional points can be said to be almost in sight of each other.

I have insisted so much upon the Mediterranean character of this region that it is necessary to emphasize the contrasts also. Reserving details and comments on different localities as to the commercial value of products and climatic conditions, I will make some general observations. I am convinced that the fig can not only be grown here in sufficient quantity to supply our markets, but of the best quality. The same may be said of the English walnut. This clean and handsome tree thrives wonderfully in large areas,

SCENE AT PASADENA.

and has no enemies. The olive culture is in its infancy, but I have never tasted better oil than that produced at Santa Barbara and on San Diego Bay. Specimens of the pickled olive are delicious, and when the best varieties are generally grown, and the best method of curing is adopted, it will be in great demand, not as a mere relish, but as food. The raisin is produced in all the valleys of Southern California, and in great quantities in the hot valley of San Joaquin, beyond the Sierra Madre range. The best Malaga raisins, which have the reputation of being the best in the world, may never come to our market, but I have never eaten a better raisin for size, flavor, and thinness of skin than those raised in the El Cajon Valley, which is watered by the great flume which taps a reservoir in the Cuyamaca Mountains, and supplies San Diego. But the quality of the raisin in California will be improved by experience in cultivation and handling.

The contrast with the Mediterranean region—I refer to the western basin—is in climate. There is hardly any point along the French and Italian coast that is not subject to great and sudden changes, caused by the north wind, which has many names, or in the extreme southern peninsula and islands by the sirocco. There are few points that are not reached by malaria, and in many resorts—and some of them most sunny and agreeable to the invalid—the deadliest fevers always lie in wait. There is great contrast between summer and winter, and exceeding variability in the same month. This variability is the parent of many diseases of the lungs, the bowels, and the liver. It is demonstrated now by long-continued observa-

tions that dampness and cold are not so inimical to health as variability.

The Southern California climate is an anomaly. It has been the subject of a good deal of wonder and a good deal of boasting, but it is worthy of more scientific study than it has yet received. Its distinguishing feature I take to be its equability. The temperature the year through is lower than I had supposed, and the contrast is not great between the summer and the winter months. The same clothing is appropriate, speaking generally, for the whole year. In all seasons, including the rainy days of the winter months, sunshine is the rule. The variation of temperature between day and night is considerable, but if the newcomer exercises a little care, he will not be unpleasantly affected by it. There are coast fogs, but these are not chilling and raw. Why it is that with the hydrometer showing a considerable humidity in the air the general effect of the climate is that of dryness, scientists must explain. The constant exchange of desert airs with the ocean air may account for the anomaly, and the actual dryness of the soil, even on the coast, is put forward as another explanation. Those who come from heated rooms on the Atlantic may find the winters cooler than they expect, and those used to the heated terms of the Mississippi Valley and the East will be surprised at the cool and salubrious summers. A land without high winds or thunder-storms may fairly be said to have a unique climate.

I suppose it is the equability and not conditions of dampness or dryness that renders this region so remarkably exempt from epidemics and endemic dis-

eases. The diseases of children prevalent elsewhere are unknown here; they cut their teeth without risk, and *cholera infantum* never visits them. Diseases of the bowels are practically unknown. There is no malaria, whatever that may be, and consequently an

LIVE-OAK NEAR LOS ANGELES.

absence of those various fevers and other disorders which are attributed to malarial conditions. Renal diseases are also wanting; disorders of the liver and kidneys, and Bright's disease, gout, and rheumatism, are not native. The climate in its effect is stimulating, but at the same time soothing to the nerves, so that if "nervous prostration" is wanted, it must

be brought here, and cannot be relied on to continue long. These facts are derived from medical practice with the native Indian and Mexican population. Dr. Remondino, to whom I have before referred, has made the subject a study for eighteen years, and later I shall offer some of the results of his observations upon longevity. It is beyond my province to venture any suggestion upon the effect of the climate upon deep-seated diseases, especially of the respiratory organs, of invalids who come here for health. I only know that we meet daily and constantly so many persons in fair health who say that it is impossible for them to live elsewhere that the impression is produced that a considerable proportion of the immigrant population was invalid. There are, however, two suggestions that should be made. Care is needed in acclimation to a climate that differs from any previous experience; and the locality that will suit any invalid can only be determined by personal experience. If the coast does not suit him, he may be benefited in a protected valley, or he may be improved on the foot-hills, or on an elevated mesa, or on a high mountain elevation.

One thing may be regarded as settled. Whatever the sensibility or the peculiarity of invalidism, the equable climate is exceedingly favorable to the smooth working of the great organic functions of respiration, digestion, and circulation.

It is a pity to give this chapter a medical tone. One need not be an invalid to come here and appreciate the graciousness of the air; the color of the landscape, which is wanting in our Northern clime; the constant procession of flowers the year through;

the purple hills stretching into the sea; the hundreds of hamlets, with picturesque homes overgrown with roses and geranium and heliotrope, in the midst of orange orchards and of palms and magnolias, in sight of the snow-peaks of the giant mountain ranges which shut in this land of marvellous beauty.

CHAPTER IV.

THE WINTER OF OUR CONTENT.

California is the land of the Pine and the Palm. The tree of the Sierras, native, vigorous, gigantic, and the tree of the Desert, exotic, supple, poetic, both flourish within the nine degrees of latitude. These two, the widely separated lovers of Heine's song, symbolize the capacities of the State, and although the sugar-pine is indigenous, and the date-palm, which will never be more than an ornament in this hospitable soil, was planted by the Franciscan Fathers, who established a chain of missions from San Diego to Monterey over a century ago, they should both be the distinction of one commonwealth, which, in its seven hundred miles of indented sea-coast, can boast the climates of all countries and the products of all zones.

If this State of mountains and valleys were divided by an east and west line, following the general course of the Sierra Madre range, and cutting off the eight lower counties, I suppose there would be conceit enough in either section to maintain that it only is the Paradise of the earth, but both are necessary to make the unique and contradictory California which fascinates and bewilders the traveller. He is told that the inhabitants of San Francisco go away from the draught of the Golden Gate in the summer to get

warm, and yet the earliest luscious cherries and apricots which he finds in the far south market of San Diego come from the Northern Santa Clara Valley. The truth would seem to be that in an hour's ride in any part of the State one can change his climate totally at any time of the year, and this not merely by changing his elevation, but by getting in or out of the range of the sea or the desert currents of air which follow the valleys.

To recommend to any one a winter climate is far from the writer's thought. No two persons agree on what is desirable for a winter residence, and the inclination of the same person varies with his state of health. I can only attempt to give some idea of what is called the winter months in Southern California, to which my observations mainly apply. The individual who comes here under the mistaken notion that climate ever does anything more than give nature a better chance, may speedily or more tardily need the service of an undertaker; and the invalid whose powers are responsive to kindly influences may live so long, being unable to get away, that life will be a burden to him. The person in ordinary health will find very little that is hostile to the orderly organic processes. In order to appreciate the winter climate of Southern California one should stay here the year through, and select the days that suit his idea of winter from any of the months. From the fact that the greatest humidity is in the summer and the least in the winter months, he may wear an overcoat in July in a temperature, according to the thermometer, which in January would render the overcoat unnecessary. It is dampness that causes both cold and heat to be most

felt. The lowest temperatures, in Southern California generally, are caused only by the extreme dryness of the air; in the long nights of December and January there is a more rapid and longer continued radiation of heat. It must be a dry and clear night that will send the temperature down to thirty-four degrees. But the effect of the sun upon this air is instantaneous, and the cold morning is followed at once by a warm forenoon; the difference between the average heat of July and the average cold of January, measured by the thermometer, is not great in the valleys, foot-hills, and on the coast. Five points give this result of average for January and July respectively: Santa Barbara, 52°, 66°; San Bernardino, 51°, 70°; Pomona, 52°, 68°; Los Angeles, 52°, 67°; San Diego, 53°, 66°. The day in the winter months is warmer in the interior and the nights are cooler than on the coast, as shown by the following figures for January: 7 A.M., Los Angeles, 46.5°; San Diego, 47.5°; 3 P.M., Los Angeles, 65.2°; San Diego, 60.9°. In the summer the difference is greater. In June I saw the thermometer reach 103° in Los Angeles when it was only 79° in San Diego. But I have seen the weather unendurable in New York with a temperature of 85°, while this dry heat of 103° was not oppressive. The extraordinary equanimity of the coast climate (certainly the driest marine climate in my experience) will be evident from the average mean for each month, from records of sixteen years, ending in 1877, taken at San Diego, giving each month in order, beginning with January: 53.5°, 54.7°, 56.0°, 58.2°, 60.2°, 64.6°, 67.1°, 69.0°, 66.7°, 62.9°, 58.1°, 56.0°. In the year 1877 the mean temperature at 3 P.M. at San Diego was as fol-

lows, beginning with January: 60.9°, 57.7°, 62.4°, 63.3°, 66.3°, 68.5°, 69.6°, 69.6°, 69.5°, 69.6°, 64.4°, 60.5°. For the four months of July, August, September, and October there was hardly a shade of difference at 3 P.M. The striking fact in all the records I have seen is that the difference of temperature in the daytime between summer and winter is very small, the great difference being from midnight to just before sunrise, and this latter difference is greater inland than on the coast. There are, of course, frost and ice in the mountains, but the frost that comes occasionally in the low inland valleys is of very brief duration in the morning hour, and rarely continues long enough to have a serious effect upon vegetation.

In considering the matter of temperature, the rule for vegetation and for invalids will not be the same. A spot in which delicate flowers in Southern California bloom the year round may be too cool for many invalids. It must not be forgotten that the general temperature here is lower than that to which most Eastern people are accustomed. They are used to living all winter in overheated houses, and to protracted heated terms rendered worse by humidity in the summer. The dry, low temperature of the California winter, notwithstanding its perpetual sunshine, may seem, therefore, wanting to them in direct warmth. It may take a year or two to acclimate them to this more equable and more refreshing temperature.

Neither on the coast nor in the foot-hills will the invalid find the climate of the Riviera or of Tangier —not the tramontane wind of the former, nor the absolutely genial but somewhat enervating climate of

the latter. But it must be borne in mind that in this, our Mediterranean, the seeker for health or pleasure can find almost any climate (except the very cold or the very hot), down to the minutest subdivision. He may try the dry marine climate of the coast, or the temperature of the fruit lands and gardens from San Bernardino to Los Angeles, or he may climb to any altitude that suits him in the Sierra Madre or the San Jacinto ranges. The difference may be all-important to him between a valley and a mesa which is not a hundred feet higher; nay, between a valley and the slope of a foot-hill, with a shifting of not more than fifty feet elevation, the change may be as marked for him as it is for the most sensitive young fruit-tree. It is undeniable, notwithstanding these encouraging "averages," that cold snaps, though rare, do come occasionally, just as in summer there will occur one or two or three continued days of intense heat. And in the summer in some localities—it happened in June, 1890, in the Santiago hills in Orange County—the desert sirocco, blowing over the Colorado furnace, makes life just about unendurable for days at a time. Yet with this dry heat sunstroke is never experienced, and the diseases of the bowels usually accompanying hot weather elsewhere are unknown. The experienced traveller who encounters unpleasant weather, heat that he does not expect, cold that he did not provide for, or dust that deprives him of his last atom of good-humor, and is told that it is "exceptional," knows exactly what that word means. He is familiar with the "exceptional" the world over, and he feels a sort of compassion for the inhabitants who have not yet

learned the adage, "Good wine needs no bush." Even those who have bought more land than they can pay for can afford to tell the truth.

The rainy season in Southern California, which may open with a shower or two in October, but does not set in till late in November, or till December, and is over in April, is not at all a period of cloudy weather or continuous rainfall. On the contrary, bright warm days and brilliant sunshine are the rule. The rain is most likely to fall in the night. There may be a day of rain, or several days that are overcast with distributed rain, but the showers are soon over, and the sky clears. Yet winters vary greatly in this respect, the rainfall being much greater in some than in others. In 1890 there was rain beyond the average, and even on the equable beach of Coronada there were some weeks of weather that from the California point of view were very unpleasant. It was unpleasant by local comparison, but it was not damp and chilly, like a protracted period of falling weather on the Atlantic. The rain comes with a southerly wind, caused by a disturbance far north, and with the resumption of the prevailing westerly winds it suddenly ceases, the air clears, and neither before nor after it is the atmosphere "steamy" or enervating. The average annual rainfall of the Pacific coast diminishes by regular gradation from point to point all the way from Puget Sound to the Mexican boundary. At Neah Bay it is 111 inches, and it steadily lessens down to Santa Cruz, 25.24; Monterey, 11.42; Point Conception, 12.21; San Diego, 11.01. There is fog on the coast in every month, but this diminishes, like the rainfall, from north to south. I have encountered it

in both February and June. In the south it is apt to be most persistent in April and May, when for three or four days together there will be a fine mist, which any one but a Scotchman would call rain. Usually, however, the fog-bank will roll in during the night, and disappear by ten o'clock in the morning. There is no wet season properly so called, and consequently few days in the winter months when it is not agreeable to be out-of-doors, perhaps no day when one may not walk or drive during some part of it. Yet as to precipitation or temperature it is impossible to strike any general average for Southern California. In 1883–84 San Diego had 25.77 inches of rain, and Los Angeles (fifteen miles inland) had 38.22. The annual average at Los Angeles is 17.64; but in 1876–77 the total at San Diego was only 3.75, and at Los Angeles only 5.28. Yet elevation and distance from the coast do not always determine the rainfall. The yearly mean rainfall at Julian, in the San Jacinto range, at an elevation of 4500 feet, is 37.74; observations at Riverside, 1050 feet above the sea, give an average of 9.37.

It is probably impossible to give an Eastern man a just idea of the winter of Southern California. Accustomed to extremes, he may expect too much. He wants a violent change. If he quits the snow, the slush, the leaden skies, the alternate sleet and cold rain of New England, he would like the tropical heat, the languor, the color of Martinique. He will not find them here. He comes instead into a strictly temperate region; and even when he arrives, his eyes deceive him. He sees the orange ripening in its dark foliage, the long lines of the eucalyptus, the feathery pepper-tree, the magnolia, the English walnut, the

black live-oak, the fan-palm, in all the vigor of June; everywhere beds of flowers of every hue and of every country blazing in the bright sunlight—the heliotrope, the geranium, the rare hot-house roses overrunning the hedges of cypress, and the scarlet passion-vine climbing to the roof-tree of the cottages; in the vineyard or the orchard the horticulturist is following the cultivator in his shirt-sleeves; he hears running water, the song of birds, the scent of flowers is in the air, and he cannot understand why he needs winter clothing, why he is always seeking the sun, why he wants a fire at night. It is a fraud, he says, all this visible display of summer, and of an almost tropical summer at that; it is really a cold country. It is incongruous that he should be looking at a date-palm in his overcoat, and he is puzzled that a thermometrical heat that should enervate him elsewhere, stimulates him here. The green, brilliant, vigorous vegetation, the perpetual sunshine, deceive him; he is careless about the difference of shade and sun, he gets into a draught, and takes cold. Accustomed to extremes of temperature and artificial heat, I think for most people the first winter here is a disappointment. I was told by a physician who had eighteen years' experience of the climate that in his first winter he thought he had never seen a people so insensitive to cold as the San Diegans, who seemed not to require warmth. And all this time the trees are growing like asparagus, the most delicate flowers are in perpetual bloom, the annual crops are most lusty. I fancy that the soil is always warm. The temperature is truly moderate. The records for a number of years show that the mid-day temperature of clear days in winter is from 60° to 70° on the coast,

from 65° to 80° in the interior, while that of rainy days is about 60° by the sea and inland. Mr. Van Dyke says that the lowest mid-day temperature recorded at the United States signal station at San Diego during eight years is 51°. This occurred but once. In those eight years there were but twenty-one days when the mid-day temperature was not above 55°. In all that time there were but six days when the mercury fell below 36° at any time in the night; and but two when it fell to 32°, the lowest point ever reached there. On one of these two last-named days it went to 51° at noon, and on the other to 56°. This was the great "cold snap" of December, 1879.

It goes without saying that this sort of climate would suit any one in ordinary health, inviting and stimulating to constant out-of-door exercise, and that it would be equally favorable to that general breakdown of the system which has the name of nervous prostration. The effect upon diseases of the respiratory organs can only be determined by individual experience. The government has lately been sending soldiers who have consumption from various stations in the United States to San Diego for treatment. This experiment will furnish interesting data. Within a period covering a little over two years, Dr. Huntington, the post surgeon, has had fifteen cases sent to him. Three of these patients had tubercular consumption; twelve had consumption induced by attacks of pneumonia. One of the tubercular patients died within a month after his arrival; the second lived eight months; the third was discharged cured, left the army, and contracted malaria elsewhere, of which he died. The remaining twelve were discharged practi-

cally cured of consumption, but two of them subsequently died. It is exceedingly common to meet persons of all ages and both sexes in Southern California who came invalided by disease of the lungs or throat, who have every promise of fair health here, but who dare not leave this climate. The testimony is convincing of the good effect of the climate upon all children, upon women generally, and of its rejuvenating effect upon men and women of advanced years.

CHAPTER V.

HEALTH AND LONGEVITY.

In regard to the effect of climate upon health and longevity, Dr. Remondino quotes old Hufeland that "uniformity in the state of the atmosphere, particularly in regard to heat, cold, gravity, and lightness, contributes in a very considerable degree to the duration of life. Countries, therefore, where great and sudden varieties in the barometer and the thermometer are usual cannot be favorable to longevity. Such countries may be healthy, and many men may become old in them, but they will not attain to a great age, for all rapid variations are so many internal mutations, and these occasion an astonishing consumption both of the forces and the organs." Hufeland thought a marine climate most favorable to longevity. He describes, and perhaps we may say prophesied, a region he had never known, where the conditions and combinations were most favorable to old age, which is epitomized by Dr. Remondino: "where the latitude gives warmth and the sea or ocean tempering winds, where the soil is warm and dry and the sun is also bright and warm, where uninterrupted bright clear weather and a moderate temperature are the rule, where extremes neither of heat nor cold are to be found, where nothing may interfere with the exercise of the aged, and where the actual results and cases of longevity

MIDWINTER, PASADENA.

will bear testimony as to the efficacy of all its climatic conditions being favorable to a long and comfortable existence."

In an unpublished paper Dr. Remondino comments on the extraordinary endurance of animals and men in the California climate, and cites many cases of uncommon longevity in natives. In reading the accounts of early days in California I am struck with the endurance of hardship, exposure, and wounds by the natives and the adventurers, the rancheros, horsemen, herdsmen, the descendants of soldiers and the Indians, their insensibility to fatigue, and their agility and strength. This is ascribed to the climate; and what is true of man is true of the native horse. His only rival in strength, endurance, speed, and intelligence is the Arabian. It was long supposed that this was racial, and that but for the smallness of the size of the native horse, crossing with it would improve the breed of the Eastern and Kentucky racers. But there was reluctance to cross the finely proportioned Eastern horse with his diminutive Western brother. The importation and breeding of thoroughbreds on this coast has led to the discovery that the desirable qualities of the California horse were not racial but climatic. The Eastern horse has been found to improve in size, compactness of muscle, in strength of limb, in wind, with a marked increase in power of endurance. The traveller here notices the fine horses and their excellent condition, and the power and endurance of those that have considerable age. The records made on Eastern race-courses by horses from California breeding farms have already attracted attention. It is also remarked that the Eastern horse is usually improved greatly by

a sojourn of a season or two on this coast, and the plan of bringing Eastern race-horses here for the winter is already adopted.

Man, it is asserted by our authority, is as much benefited as the horse by a change to this climate. The new-comer may have certain unpleasant sensations in coming here from different altitudes and conditions, but he will soon be conscious of better being, of increased power in all the functions of life, more natural and recuperative sleep, and an accession of vitality and endurance. Dr. Remondino also testifies that it occasionally happens in this rejuvenation that families which have seemed to have reached their limit at the East are increased after residence here.

The early inhabitants of Southern California, according to the statement of Mr. H. H. Bancroft and other reports, were found to be living in Spartan conditions as to temperance and training, and in a highly moral condition, in consequence of which they had uncommon physical endurance and contempt for luxury. This training in abstinence and hardship, with temperance in diet, combined with the climate to produce the astonishing longevity to be found here. Contrary to the customs of most other tribes of Indians, their aged were the care of the community. Dr. W. A. Winder, of San Diego, is quoted as saying that in a visit to El Cajon Valley some thirty years ago he was taken to a house in which the aged persons were cared for. There were half a dozen who had reached an extreme age. Some were unable to move, their bony frame being seemingly anchylosed. They were old, wrinkled, and blear-eyed; their skin was hanging in leathery folds about their withered limbs; some had hair as

A TYPICAL GARDEN, NEAR SANTA ANA.

white as snow, and had seen some seven-score of years; others, still able to crawl, but so aged as to be unable to stand, went slowly about on their hands and knees, their limbs being attenuated and withered. The organs of special sense had in many nearly lost all activity some generations back. Some had lost the use of their limbs for more than a decade or a generation; but the organs of life and the "great sympathetic" still kept up their automatic functions, not recognizing the fact, and surprisingly indifferent to it, that the rest of the body had ceased to be of any use a generation or more in the past. And it is remarked that "these thoracic and abdominal organs and their physiological action being kept alive and active, as it were, against time, and the silent and unconscious functional activity of the great sympathetic and its ganglia, show a tenacity of the animal tissues to hold on to life that is phenomenal."

I have no space to enter upon the nature of the testimony upon which the age of certain Indians hereafter referred to is based. It is such as to satisfy Dr. Remondino, Dr. Edward Palmer, long connected with the Agricultural Department of the Smithsonian Institution, and Father A. D. Ubach, who has religious charge of the Indians in this region. These Indians were not migratory; they lived within certain limits, and were known to each other. The missions established by the Franciscan friars were built with the assistance of the Indians. The friars have handed down by word of mouth many details in regard to their early missions; others are found in the mission records, such as carefully kept records of family events—births, marriages, and deaths. And there is the testimony of

the Indians regarding each other. Father Ubach has known a number who were employed at the building of the mission of San Diego (1769–71), a century before he took charge of this mission. These men had been engaged in carrying timber from the mountains or in making brick, and many of them were living within the last twenty years. There are persons still living at the Indian village of Capitan Grande whose ages he estimates at over one hundred and thirty years. Since the advent of civilization the abstemious habits and Spartan virtues of these Indians have been impaired, and their care for the aged has relaxed.

Dr. Palmer has a photograph (which I have seen) of a squaw whom he estimates to be 126 years old. When he visited her he saw her put six watermelons in a blanket, tie it up, and carry it on her back for two miles. He is familiar with Indian customs and history, and a careful cross-examination convinced him that her information of old customs was not obtained by tradition. She was conversant with tribal habits she had seen practised, such as the cremation of the dead, which the mission fathers had compelled the Indians to relinquish. She had seen the Indians punished by the fathers with floggings for persisting in the practice of cremation.

At the mission of San Tomas, in Lower California, is still living an Indian (a photograph of whom Dr. Remondino shows), bent and wrinkled, whose age is computed at 140 years. Although blind and naked, he is still active, and daily goes down the beach and along the beds of the creeks in search of drift-wood, making it his daily task to gather and carry to camp a fagot of wood.

Another instance I give in Dr. Remondino's words: "Philip Crossthwaite, who has lived here since 1843, has an old man on his ranch who mounts his horse and rides about daily, who was a grown man breaking horses for the mission fathers when Don Antonio Ser-

OLD ADOBE HOUSE, POMONA.

rano was an infant. Don Antonio I know quite well, having attended him through a serious illness some sixteen years ago. Although now at the advanced age of ninety-three, he is as erect as a pine, and he rides

his horse with his usual vigor and grace. He is thin and spare and very tall, and those who knew him fifty years or more remember him as the most skilful horseman in the neighborhood of San Diego. And yet, as fabulous as it may seem, the man who danced this Don Antonio on his knee when he was an infant is not only still alive, but is active enough to mount his horse and canter about the country. Some years ago I attended an elderly gentleman, since dead, who knew this man as a full-grown man when he and Don Serrano were play-children together. From a conversation with Father Ubach I learned that the man's age is perfectly authenticated to be beyond one hundred and eighteen years."

In the many instances given of extreme old age in this region the habits of these Indians have been those of strict temperance and abstemiousness, and their long life in an equable climate is due to extreme simplicity of diet. In many cases of extreme age the diet has consisted simply of acorns, flour, and water. It is asserted that the climate itself induces temperance in drink and abstemiousness in diet. In his estimate of the climate as a factor of longevity, Dr. Remondino says that it is only necessary to look at the causes of death, and the ages most subject to attack, to understand that the less of these causes that are present the greater are the chances of man to reach great age. "Add to these reflections that you run no gantlet of diseases to undermine or deteriorate the organism; that in this climate childhood finds an escape from those diseases which are the terror of mothers, and against which physicians are helpless, as we have here none of those affections of the first three years of life

FAN-PALM, FERNANDO ST. LOS ANGELES.

so prevalent during the summer months in the East and the rest of the United States. Then, again, the chance of gastric or intestinal disease is almost incredibly small. This immunity extends through every age of life. Hepatic and kindred diseases are unknown; of lung affections there is no land that can boast of like exemption. Be it the equability of the tempera-

ture or the aseptic condition of the atmosphere, the free sweep of winds or the absence of disease germs, or what else it may be ascribed to, one thing is certain, that there is no pneumonia, bronchitis, or pleurisy lying in wait for either the infant or the aged."

The importance of this subject must excuse the space I have given to it. It is evident from this testimony that here are climatic conditions novel and worthy of the most patient scientific investigation. Their effect upon hereditary tendencies and upon persons coming here with hereditary diseases will be studied. Three years ago there was in some localities a visitation of small-pox imported from Mexico. At that time there were cases of pneumonia. Whether these were incident to carelessness in vaccination, or were caused by local unsanitary conditions, I do not know. It is not to be expected that unsanitary conditions will not produce disease here as elsewhere. It cannot be too strongly insisted that this is a climate that the new-comer must get used to, and that he cannot safely neglect the ordinary precautions. The difference between shade and sun is strikingly marked, and he must not be deceived into imprudence by the prevailing sunshine or the general equability.

CHAPTER VI.

IS RESIDENCE HERE AGREEABLE?

After all these averages and statistics, and not considering now the chances of the speculator, the farmer, the fruit-raiser, or the invalid, is Southern California a particularly agreeable winter residence? The question deserves a candid answer, for it is of the last importance to the people of the United States to know the truth — to know whether they have accessible by rail a region free from winter rigor and vicissitudes, and yet with few of the disadvantages of most winter resorts. One would have more pleasure in answering the question if he were not irritated by the perpetual note of brag and exaggeration in every locality that each is the paradise of the earth, and absolutely free from any physical discomfort. I hope that this note of exaggeration is not the effect of the climate, for if it is, the region will never be socially agreeable.

There are no sudden changes of season here. Spring comes gradually day by day, a perceptible hourly waking to life and color; and this glides into a summer which never ceases, but only becomes tired and fades into the repose of a short autumn, when the sere and brown and red and yellow hills and the purple mountains are waiting for the rain clouds. This is according to the process of nature; but

wherever irrigation brings moisture to the fertile soil, the green and bloom are perpetual the year round, only the green is powdered with dust, and the cultivated flowers have their periods of exhaustion.

I should think it well worth while to watch the procession of nature here from late November or December to April. It is a land of delicate and brilliant wild flowers, of blooming shrubs, strange in form and wonderful in color. Before the annual rains the land lies in a sort of swoon in a golden haze; the slopes and plains are bare, the hills yellow with ripe wild-oats or ashy gray with sage, the sea-breeze is weak, the air grows drier, the sun hot, the shade cool. Then one day light clouds stream up from the south-west, and there is a gentle rain. When the sun comes out again its rays are milder, the land is refreshed and brightened, and almost immediately a greenish tinge appears on plain and hill-side. At intervals the rain continues, daily the landscape is greener in infinite variety of shades, which seem to sweep over the hills in waves of color. Upon this carpet of green by February nature begins to weave an embroidery of wild flowers, white, lavender, golden, pink, indigo, scarlet, changing day by day and every day more brilliant, and spreading from patches into great fields until dale and hill and table-land are overspread with a refinement and glory of color that would be the despair of the carpet-weavers of Daghestan.

This, with the scent of orange groves and tea-roses, with cool nights, snow in sight on the high mountains, an occasional day of rain, days of bright sunshine, when an overcoat is needed in driving,

must suffice the sojourner for winter. He will be humiliated that he is more sensitive to cold than the heliotrope or the violet, but he must bear it. If he is looking for malaria, he must go to some other winter resort. If he wants a "norther" continuing for days, he must move on. If he is accustomed to various insect pests, he will miss them here. If there comes a day warmer than usual, it will not be damp or soggy. So far as nature is concerned there is very little to grumble at, and one resource of the traveller is therefore taken away.

But is it interesting? What is there to do? It must be confessed that there is a sort of monotony in the scenery as there is in the climate. There is, to be sure, great variety in a way between coast and mountain, as, for instance, between Santa Barbara and Pasadena, and if the tourist will make a business of exploring the valleys and uplands and cañons little visited, he will not complain of monotony; but the artist and the photographer find the same elements repeated in little varying combinations. There is undeniable repetition in the succession of flower-gardens, fruit orchards, alleys of palms and peppers, vineyards, and the cultivation about the villas is repeated in all directions. The Americans have not the art of making houses or a land picturesque. The traveller is enthusiastic about the exquisite drives through these groves of fruit, with the ashy or the snow-covered hills for background and contrast, and he exclaims at the pretty cottages, vine and rose clad, in their semi-tropical setting, but if by chance he comes upon an old adobe or a Mexican ranch house in the country, he has emotions of a different sort.

There is little left of the old Spanish occupation, but the remains of it make the romance of the country, and appeal to our sense of fitness and beauty. It is to be hoped that all such historical associations will be preserved, for they give to the traveller that which

SCARLET PASSION-VINE.

our country generally lacks, and which is so largely the attraction of Italy and Spain. Instead of adapting and modifying the houses and homes that the climate suggests, the new American comers have brought here from the East the smartness and pretti-

ness of our modern nondescript architecture. The low house, with recesses and galleries, built round an inner court, or *patio*, which, however small, would fill the whole interior with sunshine and the scent of flowers, is the sort of dwelling that would suit the climate and the habit of life here. But the present occupiers have taken no hints from the natives. In village and country they have done all they can, in spite of the maguey and the cactus and the palm and the umbrella-tree and the live-oak and the riotous flowers and the thousand novel forms of vegetation, to give everything a prosaic look. But why should the tourist find fault with this? The American likes it, and he would not like the picturesqueness of the Spanish or the Latin races.

So far as climate and natural beauty go to make one contented in a winter resort, Southern California has unsurpassed attractions, and both seem to me to fit very well the American temperament; but the associations of art and history are wanting, and the tourist knows how largely his enjoyment of a vacation in Southern Italy or Sicily or Northern Africa depends upon these—upon these and upon the aspects of human nature foreign to his experience.

It goes without saying that this is not Europe, either in its human interest or in a certain refinement of landscape that comes only by long cultivation and the occupancy of ages. One advantage of foreign travel to the restless American is that he carries with him no responsibility for the government or the progress of the country he is in, and that he leaves business behind him; whereas in this new country, which is his own, the development of which is so interesting,

and in which the opportunities of fortune seem so inviting, he is constantly tempted "to take a hand in." If, however, he is superior to this fever, and is willing simply to rest, to drift along with the equable days, I know of no other place where he can be more truly contented. Year by year the country becomes more agreeable for the traveller, in the first place, through the improvement in the hotels, and in the second, by better roads. In the large villages and cities there are miles of excellent drives, well sprinkled, through delightful avenues, in a park-like country, where the eye is enchanted with color and luxurious vegetation, and captivated by the remarkable beauty of the hills, the wildness and picturesqueness of which enhance the charming cultivation of the orchards and gardens. And no country is more agreeable for riding and driving, for even at mid-day, in the direct sun rays, there is almost everywhere a refreshing breeze, and one rides or drives or walks with little sense of fatigue. The horses are uniformly excellent, either in the carriage or under the saddle. I am sure they are remarkable in speed, endurance, and ease of motion. If the visiting season had no other attraction, the horses would make it distinguished.

A great many people like to spend months in a comfortable hotel, lounging on the piazzas, playing lawn-tennis, taking a morning ride or afternoon drive, making an occasional picnic excursion up some mountain cañon, getting up charades, playing at private theatricals, dancing, flirting, floating along with more or less sentiment and only the weariness that comes when there are no duties. There are plenty of places where all these things can be done, and with no sort

of anxiety about the weather from week to week, and with the added advantage that the women and children can take care of themselves. But for those who find such a life monotonous there are other resources. There is very good fishing in the clear streams in the foot-hills, hunting in the mountains for large game still worthy of the steadiest nerves, and good bird-shooting everywhere. There are mountains to climb, cañons to explore, lovely valleys in the recesses of the hills to be discovered—in short, one disposed to activity and not afraid of roughing it could occupy himself most agreeably and healthfully in the wild parts of San Bernardino and San Diego counties; he may even still start a grizzly in the Sierra Madre range in Los Angeles County. Hunting and exploring in the mountains, riding over the mesas, which are green from the winter rains and gay with a thousand delicate grasses and flowering plants, is manly occupation to suit the most robust and adventurous. Those who saunter in the trim gardens, or fly from one hotel parlor to the other, do not see the best of Southern California in the winter.

CHAPTER VII.

THE WINTER ON THE COAST.

But the distinction of this coast, and that which will forever make it attractive at the season when the North Atlantic is forbidding, is that the ocean-side is as equable, as delightful, in winter as in summer. Its sea-side places are truly all-the-year-round resorts. In subsequent chapters I shall speak in detail of different places as to climate and development and peculiarities of production. I will now only give a general idea of Southern California as a wintering place. Even as far north as Monterey, in the central part of the State, the famous Hotel del Monte, with its magnificent park of pines and live-oaks, and exquisite flower-gardens underneath the trees, is remarkable for its steadiness of temperature. I could see little difference between the temperature of June and of February. The difference is of course greatest at night. The maximum the year through ranges from about 65° to about 80°, and the minimum from about 35° to about 58°, though there are days when the thermometer goes above 90°, and nights when it falls below 30°.

To those who prefer the immediate ocean air to that air as modified by such valleys as the San Gabriel and the Santa Ana, the coast offers a variety of choice in different combinations of sea and mountain

ROSE-BUSH, SANTA BARBARA.

climate all along the southern sunny exposure from Santa Barbarba to San Diego. In Santa Barbara County the Santa Inez range of mountains runs westward to meet the Pacific at Point Conception. South of this noble range are a number of little valleys opening to the sea, and in one of these, with a harbor and sloping upland and cañon of its own, lies Santa Barbara, looking southward towards the sunny islands of Santa Rosa and Santa Cruz. Above it is the Mission Cañon, at the entrance of which is the best-preserved of the old Franciscan missions. There is a superb drive eastward along the long and curving sea-beach of four miles to the cañon of Monticito, which is rather a series of nooks and terraces, of lovely places and gardens, of plantations of oranges and figs, rising up to the base of the gray mountains. The long line of the Santa Inez suggests the promontory of Sorrento, and a view from the opposite rocky point, which encloses the harbor on the west, by the help of cypresses which look like stone-pines, recalls many an Italian coast scene, and in situation the Bay of Naples. The whole aspect is foreign, enchanting, and the semi-tropical fruits and vines and flowers, with a golden atmosphere poured over all, irresistibly take the mind to scenes of Italian romance. There is still a little Spanish flavor left in the town, in a few old houses, in names and families historic, and in the life without hurry or apprehension. There is a delightful commingling here of sea and mountain air, and in a hundred fertile nooks in the hills one in the most delicate health may be sheltered from every harsh wind. I think no one ever leaves Santa Barbara without a desire to return to it.

Farther down the coast, only eighteen miles from Los Angeles, and a sort of Coney Island resort of that thriving city, is Santa Monica. Its hotel stands on a high bluff in a lovely bend of the coast. It is popular in summer as well as winter, as the number of cottages attest, and it was chosen by the directors of the National Soldiers' Home as the site of the Home on the Pacific coast. There the veterans, in a commodious building, dream away their lives most contentedly, and can fancy that they hear the distant thunder of guns in the pounding of the surf.

At about the same distance from Los Angeles, southward, above Point Vincent, is Redondo Beach, a new resort, which, from its natural beauty and extensive improvements, promises to be a delightful place of sojourn at any time of the year. The mountainous, embracing arms of the bay are exquisite in contour and color, and the beach is very fine. The hotel is perfectly comfortable—indeed, uncommonly attractive—and the extensive planting of trees, palms, and shrubs, and the cultivation of flowers, will change the place in a year or two into a scene of green and floral loveliness; in this region two years, such is the rapid growth, suffices to transform a desert into a park or garden. On the hills, at a little distance from the beach and pier, are the buildings of the Chautauqua, which holds a local summer session here. The Chautauqua people, the country over, seem to have, in selecting sightly and agreeable sites for their temples of education and amusement, as good judgment as the old monks had in planting their monasteries and missions.

If one desires a thoroughly insular climate, he may

AT AVALON, SANTA CATALINA ISLAND.

cross to the picturesque island of Santa Catalina. All along the coast flowers bloom in the winter months, and the ornamental semi-tropical plants thrive; and there are many striking headlands and pretty bays and gentle seaward slopes which are already occupied by villages, and attract visitors who would practise economy. The hills frequently come close to the shore, forming those valleys in which the Californians of the pastoral period placed their ranch houses. At San Juan Capristrano the fathers had one of their most flourishing missions, the ruins of which are the most picturesque the traveller will find. It is altogether a genial, attractive coast, and if the tourist does not prefer an inland situation, like the Hotel Raymond (which scarcely has a rival anywhere in its lovely surroundings), he will keep on down the coast to San Diego.

The transition from the well-planted counties of Los Angeles and Orange is not altogether agreeable to the eye. One misses the trees. The general aspect of the coast about San Diego is bare in comparison. This simply means that the southern county is behind the others in development. Nestled among the hills there are live-oaks and sycamores; and of course at National City and below, in El Cajon and the valley of the Sweetwater, there are extensive plantations of oranges, lemons, olives, and vines, but the San Diego region generally lies in the sun shadeless. I have a personal theory that much vegetation is inconsistent with the best atmosphere for the human being. The air is nowhere else so agreeable to me as it is in a barren New Mexican or Arizona desert at the proper elevation. I do not know whether the San Diego cli-

mate would be injured if the hills were covered with forest and the valleys were all in the highest and most luxuriant vegetation. The theory is that the interaction of the desert and ocean winds will always keep it as it is, whatever man may do. I can only say that, as it is, I doubt if it has its equal the year round for agreeableness and healthfulness in our Union; and it is the testimony of those whose experience of the best Mediterranean climate is more extended and much longer continued than mine, that it is superior to any on that enclosed sea. About this great harbor, whose outer beach has an extent of twenty-five miles, whose inland circuit of mountains must be over fifty miles, there are great varieties of temperature, of shelter and exposure, minute subdivisions of climate, whose personal fitness can only be attested by experience. There is a great difference, for instance, between the quality of the climate at the elevation of the Florence Hotel, San Diego, and the University Heights on the mesa above the town, and that on the long Coronado Beach which protects the inner harbor from the ocean surf. The latter, practically surrounded by water, has a true marine climate, but a peculiar and dry marine climate, as tonic in its effect as that of Capri, and, I believe, with fewer harsh days in the winter season. I wish to speak with entire frankness about this situation, for I am sure that what so much pleases me will suit a great number of people, who will thank me for not being reserved. Doubtless it will not suit hundreds of people as well as some other localities in Southern California, but I found no other place where I had the feeling of absolute content and willingness to stay on indefinitely.

There is a geniality about it for which the thermometer does not account, a charm which it is difficult to explain. Much of the agreeability is due to artificial conditions, but the climate man has not made nor marred.

The Coronado Beach is about twelve miles long. A narrow sand promontory, running northward from the main-land, rises to the Heights, then broadens into a table-land, which seems to be an island, and measures about a mile and a half each way; this is called South Beach, and is connected by another spit of sand with a like area called North Beach, which forms, with Point Loma, the entrance to the harbor. The North Beach, covered partly with chaparral and broad fields of barley, is alive with quail, and is a favorite coursing-ground for rabbits. The soil, which appears uninviting, is with water uncommonly fertile, being a mixture of loam, disintegrated granite, and decomposed shells, and especially adapted to flowers, rare tropical trees, fruits, and flowering shrubs of all countries.

The development is on the South Beach, which was in January, 1887, nothing but a waste of sand and chaparral. I doubt if the world can show a like transformation in so short a time. I saw it in February of that year, when all the beauty, except that of ocean, sky, and atmosphere, was still to be imagined. It is now as if the wand of the magician had touched it. In the first place, abundance of water was brought over by a submarine conduit, and later from the extraordinary Coronado Springs (excellent soft water for drinking and bathing, and with a recognized medicinal value), and with these streams the beach began to bloom like a tropical garden. Tens of thousands of trees

have attained a remarkable growth in three years. The nursery is one of the most interesting botanical and flower gardens in the country; palms and hedges of Monterey cypress and marguerites line the avenues. There are parks and gardens of rarest flowers and shrubs, whose brilliant color produces the same excitement in the mind as strains of martial music. A railway traverses the beach for a mile from the ferry to the hotel. There are hundreds of cottages with their gardens scattered over the surface; there is a race-track, a museum, an ostrich farm, a labyrinth, good roads for driving, and a dozen other attractions for the idle or the inquisitive.

The hotel stands upon the south front of the beach and near the sea, above which it is sufficiently elevated to give a fine prospect. The sound of the beating surf is perpetual there. At low tide there is a splendid driving beach miles in extent, and though the slope is abrupt, the opportunity for bathing is good, with a little care in regard to the undertow. But there is a safe natatorium on the harbor side close to the hotel. The stranger, when he first comes upon this novel hotel and this marvellous scene of natural and created beauty, is apt to exhaust his superlatives. I hesitate to attempt to describe this hotel—this airy and picturesque and half-bizarre wooden creation of the architect. Taking it and its situation together, I know nothing else in the world with which to compare it, and I have never seen any other which so surprised at first, that so improved on a two weeks' acquaintance, and that has left in the mind an impression so entirely agreeable. It covers about four and a half acres of ground, including an inner court of about an acre, the

HOTEL DEL CORONADO.

rich made soil of which is raised to the level of the main floor. The house surrounds this, in the Spanish mode of building, with a series of galleries, so that most of the suites of rooms have a double outlook—one upon this lovely garden, the other upon the ocean or the harbor. The effect of this interior court or *patio* is to give gayety and an air of friendliness to the place, brilliant as it is with flowers and climbing vines; and when the royal and date palms that are vigorously thriving in it attain their growth it will be magnificent. Big hotels and caravansaries are usually tiresome, unfriendly places; and if I should lay too much stress upon the vast dining-room (which has a floor area of ten thousand feet without post or pillar), or the beautiful breakfast-room, or the circular ball-room (which has an area of eleven thousand feet, with its timber roof open to the lofty observatory), or the music-room, billiard-rooms for ladies, the reading-rooms and parlors, the pretty gallery overlooking the spacious office rotunda, and then say that the whole is illuminated with electric lights, and capable of being heated to any temperature desired—I might convey a false impression as to the actual comfort and home-likeness of this charming place. On the sea side the broad galleries of each story are shut in by glass, which can be opened to admit or shut to exclude the fresh ocean breeze. Whatever the temperature outside, those great galleries are always agreeable for lounging or promenading. For me, I never tire of the sea and its changing color and movement. If this great house were filled with guests, so spacious are its lounging places I should think it would never appear to be crowded; and if it were nearly empty, so ad-

mirably are the rooms contrived for family life it will not seem lonesome. I shall add that the management is of the sort that makes the guest feel at home and at ease. Flowers, brought in from the gardens and nurseries, are everywhere in profusion — on the dining-tables, in the rooms, all about the house. So abun-

OSTRICH YARD, CORONADO BEACH.

dantly are they produced that no amount of culling seems to make an impression upon their mass.

But any description would fail to give the secret of the charm of existence here. Restlessness disappears, for one thing, but there is no languor or depression. I cannot tell why, when the thermometer is at 60° or 63°, the air seems genial and has no sense of chilliness,

or why it is not oppressive at 80° or 85°. I am sure the place will not suit those whose highest idea of winter enjoyment is tobogganing and an ice palace, nor those who revel in the steam and languor of a tropical island; but for a person whose desires are moderate, whose tastes are temperate, who is willing for once to be good-humored and content in equable conditions, I should commend Coronado Beach and the Hotel del Coronado, if I had not long ago learned that it is unsafe to commend to any human being a climate or a doctor.

But you can take your choice. It lies there, our Mediterranean region, on a blue ocean, protected by barriers of granite from the Northern influences, an infinite variety of plain, cañon, hills, valleys, sea-coast; our New Italy without malaria, and with every sort of fruit which we desire (except the tropical), which will be grown in perfection when our knowledge equals our ambition; and if you cannot find a winter home there or pass some contented weeks in the months of Northern inclemency, you are weighing social advantages against those of the least objectionable climate within the Union. It is not yet proved that this equability and the daily out-door life possible there will change character, but they are likely to improve the disposition and soften the asperities of common life. At any rate, there is a land where from November to April one has not to make a continual fight with the elements to keep alive.

It has been said that this land of the sun and of the equable climate will have the effect that other lands of a southern aspect have upon temperament and habits. It is feared that Northern-bred people,

who are guided by the necessity of making hay while the sun shines, will not make hay at all in a land where the sun always shines. It is thought that unless people are spurred on incessantly by the exigencies of the changing seasons they will lose energy, and fall into an idle floating along with gracious nature. Will not one sink into a comfortable and easy procrastination if he has a whole year in which to perform the labor of three months? Will Southern California be an exception to those lands of equable climate and extraordinary fertility where every effort is postponed till "to-morrow?"

I wish there might be something solid in this expectation; that this may be a region where the restless American will lose something of his hurry and petty, feverish ambition. Partially it may be so. He will take, he is already taking, something of the tone of the climate and of the old Spanish occupation. But the race instinct of thrift and of "getting on" will not wear out in many generations. Besides, the condition of living at all in Southern California in comfort, and with the social life indispensable to our people, demands labor, not exhausting and killing, but still incessant — demands industry. A land that will not yield satisfactorily without irrigation, and whose best paying produce requires intelligent as well as careful husbandry, will never be an idle land. Egypt, with all its *dolce far niente*, was never an idle land for the laborer.

It may be expected, however, that no more energy will be developed or encouraged than is needed for the daily tasks, and these tasks being lighter than elsewhere, and capable of being postponed, that there will

be less stress and strain in the daily life. Although the climate of Southern California is not enervating, in fact is stimulating to the new-comer, it is doubtless true that the monotony of good weather, of the sight of perpetual bloom and color in orchards and gardens, will take away nervousness and produce a certain placidity, which might be taken for laziness by a Northern observer. It may be that engagements will not be kept with desired punctuality, under the impression that the enjoyment of life does not depend upon exact response to the second-hand of a watch; and it is not unpleasant to think that there is a corner of the Union where there will be a little more leisure, a little more of serene waiting on Providence, an abatement of the restless rush and haste of our usual life. The waves of population have been rolling westward for a long time, and now, breaking over the mountains, they flow over Pacific slopes and along the warm and inviting seas. Is it altogether an unpleasing thought that the conditions of life will be somewhat easier there, that there will be some physical repose, the race having reached the sunset of the continent, comparable to the desirable placidity of life called the sunset of old age? This may be altogether fanciful, but I have sometimes felt, in the sunny moderation of nature there, that this land might offer for thousands at least a winter of content.

CHAPTER VIII.

THE GENERAL OUTLOOK.—LAND AND PRICES.

From the northern limit of California to the southern is about the same distance as from Portsmouth, New Hampshire, to Charleston, South Carolina. Of these two coast lines, covering nearly ten degrees of latitude, or over seven hundred miles, the Atlantic has greater extremes of climate and greater monthly variations, and the Pacific greater variety of productions. The State of California is, however, so mountainous, cut by longitudinal and transverse ranges, that any reasonable person can find in it a temperature to suit him the year through. But it does not need to be explained that it would be difficult to hit upon any general characteristic that would apply to the stretch of the Atlantic coast named, as a guide to a settler looking for a home; the description of Massachusetts would be wholly misleading for South Carolina. It is almost as difficult to make any comprehensive statement about the long line of the California coast.

It is possible, however, limiting the inquiry to the southern third of the State—an area of about fifty-eight thousand square miles, as large as Maine, New Hampshire, Massachusetts, Connecticut, and Rhode Island—to answer fairly some of the questions oftenest asked about it. These relate to the price of land, its productiveness, the kind of products most profit-

able, the sort of labor required, and its desirability as a place of residence for the laborer, for the farmer or horticulturist of small means, and for the man with considerable capital. Questions on these subjects cannot be answered categorically, but I hope to be able, by setting down my own observations and using trustworthy reports, to give others the material on which to exercise their judgment. In the first place, I think it demonstrable that a person would profitably exchange 160 acres of farming land east of the one hundredth parallel for ten acres, with a water right, in Southern California.

In making this estimate I do not consider the question of health or merely the agreeability of the climate, but the conditions of labor, the ease with which one could support a family, and the profits over and above a fair living. It has been customary in reckoning the value of land there to look merely to the profit of it beyond its support of a family, forgetting that agriculture and horticulture the world over, like almost all other kinds of business, usually do little more than procure a good comfortable living, with incidental education, to those who engage in them. That the majority of the inhabitants of Southern California will become rich by the culture of the orange and the vine is an illusion; but it is not an illusion that twenty times its present population can live there in comfort, in what might be called luxury elsewhere, by the cultivation of the soil, all far removed from poverty and much above the condition of the majority of the inhabitants of the foreign wine and fruit-producing countries. This result is assured by the extraordinary productiveness of the land, uninterrupted the

year through, and by the amazing extension of the market in the United States for products that can be nowhere else produced with such certainty and profusion as in California. That State is only just learning how to supply a demand which is daily increasing, but it already begins to command the market in certain fruits. This command of the market in the future will depend upon itself, that is, whether it will send

YUCCA-PALM.

East and North only sound wine, instead of crude, ill-cured juice of the grape, only the best and most carefully canned apricots, nectarines, peaches, and plums,

only the raisins and prunes perfectly prepared, only such oranges, lemons, and grapes and pears as the Californians are willing to eat themselves. California has yet much to learn about fruit-raising and fruit-curing, but it already knows that to compete with the rest of the world in our markets it must beat the rest of the world in quality. It will take some time yet to remove the unfavorable opinion of California wines produced in the East by the first products of the vineyards sent here.

DATE-PALM.

The difficulty for the settler is that he cannot "take up" ten acres with water in California as he can 160 acres elsewhere. There is left little available Government land. There is plenty of government land not taken up and which may never be occupied, that is, inaccessible mountain and irreclaimable desert. There are also little nooks and fertile spots here and there to be discovered which may be pre-empted, and which will some day have value. But practically all the arable land, or that is likely to become so, is owned now in large tracts, under grants or by wholesale purchase. The circumstances of the case compelled asso-

ciate effort. Such a desert as that now blooming region known as Pasadena, Pomona, Riverside, and so on, could not be subdued by individual exertion. Consequently land and water companies were organized. They bought large tracts of unimproved land, built dams in the mountain cañons, sunk wells, drew water from the rivers, made reservoirs, laid pipes, carried ditches and conduits across the country, and then sold the land with the inseparable water right in small parcels. Thus the region became subdivided among small holders, each independent, but all mutually dependent as to water, which is the *sine qua non* of existence. It is only a few years since there was a forlorn and struggling colony a few miles east of Los Angeles known as the Indiana settlement. It had scant water, no railway communication, and everything to learn about horticulture. That spot is now the famous Pasadena.

What has been done in the Santa Ana and San Gabriel valleys will be done elsewhere in the State. There are places in Kern County, north of the Sierra Madre, where the land produces grain and alfalfa without irrigation, where farms can be bought at from five to ten dollars an acre—land that will undoubtedly increase in value with settlement and also by irrigation. The great county of San Diego is practically undeveloped, and contains an immense area, in scattered mesas and valleys, of land which will produce apples, grain, and grass without irrigation, and which the settler can get at moderate prices. Nay, more, any one with a little ready money, who goes to Southern California expecting to establish himself and willing to work, will be welcomed and aided, and be pretty certain to find some place where he can steadily improve his condi-

tion. But the regions about which one hears most, which are already fruit gardens and well sprinkled with rose-clad homes, command prices per acre which seem extravagant. Land, however, like a mine, gets its value from what it will produce; and it is to be noted that while the subsidence of the "boom" knocked the value out of twenty-feet city lots staked out in the wilderness, and out of insanely inflated city property, the land upon which crops are raised has steadily appreciated in value.

So many conditions enter into the price of land that it is impossible to name an average price for the arable land of the southern counties, but I have heard good judges place it at $100 an acre. The lands, with water, are very much alike in their producing power, but some, for climatic reasons, are better adapted to citrus fruits, others to the raisin grape, and others to deciduous fruits. The value is also affected by railway facilities, contiguity to the local commercial centre, and also by the character of the settlement—that is, by its morality, public spirit, and facilities for education. Every town and settlement thinks it has special advantages as to improved irrigation, equability of temperature, adaptation to this or that product, attractions for invalids, tempered ocean breezes, protection from "northers," schools, and varied industries. These things are so much matter of personal choice that each settler will do well to examine widely for himself, and not buy until he is suited.

Some figures, which may be depended on, of actual sales and of annual yields, may be of service. They are of the district east of Pasadena and Pomona, but fairly represent the whole region down to Los Angeles.

The selling price of raisin grape land unimproved, but with water, at Riverside is $250 to $300 per acre; at South Riverside, $150 to $200; in the highland district of San Bernardino, and at Redlands (which is a new settlement east of the city of San Bernardino), $200 to $250 per acre. At Banning and at Hesperia, which lie north of the San Bernardino range, $125 to $150 per acre are the prices asked. Distance from the commercial centre accounts for the difference in price in the towns named. The crop varies with the care and skill of the cultivator, but a fair average from the vines at two years is two tons per acre; three years, three tons; four years, five tons; five years, seven tons. The price varies with the season, and also whether its sale is upon the vines, or after picking, drying, and sweating, or the packed product. On the vines $20 per ton is a fair average price. In exceptional cases vineyards at Riverside have produced four tons per acre in twenty months from the setting of the cuttings, and six-year-old vines have produced thirteen and a half tons per acre. If the grower has a crop of, say, 2000 packed boxes of raisins of twenty pounds each box, it will pay him to pack his own crop and establish a "brand" for it. In 1889 three adjoining vineyards in Riverside, producing about the same average crops, were sold as follows: The first vineyard, at $17 50 per ton on the vines, yielded $150 per acre; the second, at six cents a pound, in the sweat boxes, yielded $276 per acre; the third, at $1 80 per box, packed, yielded $414 per acre.

Land adapted to the deciduous fruits, such as apricots and peaches, is worth as much as raisin land, and some years pays better. The pear and the apple need

greater elevation, and are of better quality when grown on high ground than in the valleys. I have reason to believe that the mountain regions of San Diego County are specially adapted to the apple.

Good orange land unimproved, but with water, is worth from $300 to $500 an acre. If we add to this price the cost of budded trees, the care of them for four years, and interest at eight per cent. per annum for four years, the cost of a good grove will be about $1000 an acre. It must be understood that the profit of an orange grove depends upon care, skill, and business ability. The kind of orange grown with reference to the demand, the judgment about more or less irrigation as affecting the quality, the cultivation of the soil, and the arrangements for marketing, are all elements in the problem. There are young groves at Riverside, five years old, that are paying ten per cent. net upon from $3000 to $5000 an acre; while there are older groves, which, at the prices for fruit in the spring of 1890—$1 60 per box for seedlings and $3 per box for navels delivered at the packing-houses—paid at the rate of ten per cent. net on $7500 per acre.

In all these estimates water must be reckoned as a prime factor. What, then, is water worth per inch, generally, in all this fruit region from Redlands to Los Angeles? It is worth just the amount it will add to the commercial value of land irrigated by it, and that may be roughly estimated at from $500 to $1000 an inch of continuous flow. Take an illustration. A piece of land at Riverside below the flow of water was worth $300 an acre. Contiguous to it was another piece not irrigated which would not sell for $50 an acre. By bringing water to it, it would quickly sell

for $300, thus adding $250 to its value. As the estimate at Riverside is that one inch of water will irrigate five acres of fruit land, five times $250 would be $1250 per inch, at which price water for irrigation has actually been sold at Riverside.

The standard of measurement of water in Southern California is the miner's inch under four inches' pressure, or the amount that will flow through an inch-square opening under a pressure of four inches measured from the surface of the water in the conduit to the centre of the opening through which it flows. This is nine gallons a minute, or, as it is figured, 1728 cubic feet or 12,960 gallons in twenty-four hours, and 1.50 of a cubic foot a second. This flow would cover ten acres about eighteen inches deep in a year; that is, it would give the land the equivalent of eighteen inches of rain, distributed exactly when and where it was needed, none being wasted, and more serviceable than fifty inches of rainfall as it generally comes. This, with the natural rainfall, is sufficient for citrus fruits and for corn and alfalfa, in soil not too sandy, and it is too much for grapes and all deciduous fruits.

CHAPTER IX.

THE ADVANTAGES OF IRRIGATION.

It is necessary to understand this problem of irrigation in order to comprehend Southern California, the exceptional value of its arable land, the certainty and great variety of its products, and the part it is to play in our markets. There are three factors in the expectation of a crop—soil, sunshine, and water. In a region where we can assume the first two to be constant, the only uncertainty is water. Southern California is practically without rain from May to December. Upon this fact rests the immense value of its soil, and the certainty that it can supply the rest of the Union with a great variety of products. This certainty must be purchased by a previous investment of money. Water is everywhere to be had for money, in some localities by surface wells, in others by artesian-wells, in others from such streams as the Los Angeles and the Santa Ana, and from reservoirs secured by dams in the heart of the high mountains. It is possible to compute the cost of any one of the systems of irrigation, to determine whether it will pay by calculating the amount of land it will irrigate. The cost of procuring water varies greatly with the situation, and it is conceivable that money can be lost in such an investment, but I have yet to hear of any irrigation that has not been more or less successful.

Farming and fruit-raising are usually games of hazard. Good crops and poor crops depend upon enough rain and not too much at just the right times. A wheat field which has a good start with moderate rain may later wither in a drought, or be ruined by too much water at the time of maturity. And, avoiding all serious reverses from either dryness or wet, every farmer knows that the quality and quantity of the product would be immensely improved if the growing stalks and roots could have water when and only when they need it. The difference would be between, say, twenty and forty bushels of grain or roots to the acre, and that means the difference between profit and loss. There is probably not a crop of any kind grown in the great West that would not be immensely benefited if it could be irrigated once or twice a year; and probably anywhere that water is attainable the cost of irrigation would be abundantly paid in the yield from year to year. Farming in the West with even a little irrigation would not be the game of hazard that it is. And it may further be assumed that there is not a vegetable patch or a fruit orchard East or West that would not yield better quality and more abundantly with irrigation.

But this is not all. Any farmer who attempts to raise grass and potatoes and strawberries on contiguous fields, subject to the same chance of drought or rainfall, has a vivid sense of his difficulties. The potatoes are spoiled by the water that helps the grass, and the coquettish strawberry will not thrive on the regimen that suits the grosser crops. In California, which by its climate and soil gives a greater variety of products than any other region in the Union, the supply

of water is adjusted to the needs of each crop, even on contiguous fields. No two products need the same amount of water, or need it at the same time. The orange needs more than the grape, the alfalfa more than the orange, the peach and apricot less than the orange; the olive, the fig, the almond, the English walnut, demand each a different supply. Depending en-

RAISIN-CURING.

tirely on irrigation six months of the year, the farmer in Southern California is practically certain of his crop year after year; and if all his plants and trees are in a healthful condition, as they will be if he is not too idle to cultivate as well as irrigate, his yield will be about double what it would be without systematic irrigation. It is this practical control of the water the

year round, in a climate where sunshine is the rule, that makes the productiveness of California so large as to be incomprehensible to Eastern people. Even the trees are not dormant more than three or four months in the year.

But irrigation, in order to be successful, must be intelligently applied. In unskilful hands it may work more damage than benefit. Mr. Theodore S. Van Dyke, who may always be quoted with confidence, says that the ground should never be flooded; that water must not touch the plant or tree, or come near enough to make the soil bake around it; and that it should be let in in small streams for two or three days, and not in large streams for a few hours. It is of the first importance that the ground shall be stirred as soon as dry enough, the cultivation to be continued, and water never to be substituted for the cultivator to prevent baking. The methods of irrigation in use may be reduced to three. First, the old Mexican way—running a small ditch from tree to tree, without any basin round the tree. Second, the basin system, where a large basin is made round the tree, and filled several times. This should only be used where water is scarce, for it trains the roots like a brush, instead of sending them out laterally into the soil. Third, the Riverside method, which is the best in the world, and produces the largest results with the least water and the least work. It is the closest imitation of the natural process of wetting by gentle rain. "A small flume, eight or ten inches square, of common red-wood is laid along the upper side of a ten-acre tract. At intervals of one to three feet, according to the nature of the ground and the stuff to be irrigated, are bored one-inch holes, with

a small wooden button over them to regulate the flow. This flume costs a trifle, is left in position, lasts for years, and is always ready. Into this flume is turned from the ditch an irrigating head of 20, 25, or 30 inches of water, generally about 20 inches. This is divided by the holes and the buttons into streams of from one-sixth to one-tenth of an inch each, making from 120 to 200 small streams. From five to seven furrows are made between two rows of trees, two between rows of grapes, one furrow between rows of corn, potatoes, etc. It may take from fifteen to twenty hours for one of the streams to get across the tract. They are allowed to run from forty-eight to seventy-two hours. The ground is then thoroughly wet in all directions, and three or four feet deep. As soon as the ground is dry enough cultivation is begun, and kept up from six to eight weeks before water is used again." Only when the ground is very sandy is the basin system necessary. Long experiment has taught that this system is by far the best; and, says Mr. Van Dyke, "Those whose ideas are taken from the wasteful systems of flooding or soaking from big ditches have something to learn in Southern California."

As to the quantity of water needed in the kind of soil most common in Southern California I will again quote Mr. Van Dyke: "They will tell you at Riverside that they use an inch of water to five acres, and some say an inch to three acres. But this is because they charge to the land all the waste on the main ditch, and because they use thirty per cent. of the water in July and August, when it is the lowest. But this is no test of the duty of water; the amount actually delivered on the land should be taken. What they actually use

for ten acres at Riverside, Redlands, etc., is a twenty-inch stream of three days' run five times a year, equal to 300 inches for one day, or one inch steady run for 300 days. As an inch is the equivalent of 365 inches

IRRIGATION BY ARTESIAN-WELL SYSTEM.

for one day, or one inch for 365 days, 300 inches for one day equals an inch to twelve acres. Many use even less than this, running the water only two or two and a half days at a time. Others use more head; but it rarely exceeds 24 inches for three days and five times a year, which would be 72 multiplied by 5, or 360 inches—a little less than a full inch for a year for ten acres."

I have given room to these details because the Riverside experiment, which results in such large returns of excellent fruit, is worthy of the attention of cultivators everywhere. The constant stirring of the

soil, to keep it loose as well as to keep down useless growths, is second in importance only to irrigation. Some years ago, when it was ascertained that tracts of land which had been regarded as only fit for herding cattle and sheep would by good ploughing and constant cultivation produce fair crops without any artificial watering, there spread abroad a notion that irrigation could be dispensed with. There are large areas, dry and cracked on the surface, where the soil is moist three and four feet below the surface in the dry season. By keeping the surface broken and well pulverized the moisture rises sufficiently to insure a crop.

IRRIGATION BY PIPE SYSTEM.

Many Western farmers have found out this secret of cultivation, and more will learn in time the good sense of not spreading themselves over too large an area; that forty acres planted and cultivated will give a

better return than eighty acres planted and neglected. Crops of various sorts are raised in Southern California by careful cultivation with little or no irrigation, but the idea that cultivation alone will bring sufficiently good production is now practically abandoned, and the almost universal experience is that judicious irrigation always improves the crop in quality and in quantity, and that irrigation and cultivation are both essential to profitable farming or fruit-raising.

CHAPTER X.

THE CHANCE FOR LABORERS AND SMALL FARMERS.

It would seem, then, that capital is necessary for successful agriculture or horticulture in Southern California. But where is it not needed? In New England? In Kansas, where land which was given to actual settlers is covered with mortgages for money absolutely necessary to develop it? But passing this by, what is the chance in Southern California for laborers and for mechanics? Let us understand the situation. In California there is no exception to the rule that continual labor, thrift, and foresight are essential to the getting of a good living or the gaining of a competence. No doubt speculation will spring up again. It is inevitable with the present enormous and yearly increasing yield of fruits, the better intelligence in vine culture, wine-making, and raisin-curing, the growth of marketable oranges, lemons, etc., and the consequent rise in the value of land. Doubtless fortunes will be made by enterprising companies who secure large areas of unimproved land at low prices, bring water on them, and then sell in small lots. But this will come to an end. The tendency is to subdivide the land into small holdings—into farms and gardens of ten and twenty acres. The great ranches are sure to be broken up. With the resulting settlement by industrious people the cities will again experience "booms;" but these are

not peculiar to California. In my mind I see the time when this region (because it will pay better proportionally to cultivate a small area) will be one of small farms, of neat cottages, of industrious homes. The owner is pretty certain to prosper—that is, to get a good living (which is independence), and lay aside a little yearly—if the work is done by himself and his family. And the peculiarity of the situation is that the farm or garden, whichever it is called, will give agreeable and most healthful occupation to all the boys and girls in the family all the days in the year that can be spared from the school. Aside from the ploughing, the labor is light. Pruning, grafting, budding, the picking of the grapes, the gathering of the fruit from the trees, the sorting, packing, and canning, are labor for light and deft hands, and labor distributed through the year. The harvest, of one sort and another, is almost continuous, so that young girls and boys can have, in well-settled districts, pretty steady employment—a long season in establishments packing oranges; at another time, in canning fruits; at another, in packing raisins.

It goes without saying that in the industries now developed, and in others as important which are in their infancy (for instance, the culture of the olive for oil and as an article of food; the growth and curing of figs; the gathering of almonds, English walnuts, etc.), the labor of the owners of the land and their families will not suffice. There must be as large a proportion of day-laborers as there are in other regions where such products are grown. Chinese labor at certain seasons has been a necessity. Under the present policy of California this must diminish, and its

place be taken by some other. The pay for this labor has always been good. It is certain to be more and more in demand. Whether the pay will ever approach near to the European standard is a question, but it is a fair presumption that the exceptional profit of the land, owing to its productiveness, will for a long time keep wages up.

During the "boom" period all wages were high, those of skilled mechanics especially, owing to the great amount of building on speculation. The ordinary laborer on a ranch had $30 a month and board and lodging; laborers of a higher grade, $2 to $2 50 a day; skilled masons, $6; carpenters, from $3 50 to $5; plasterers, $4 to $5; house-servants, from $25 to $35 a month. Since the "boom," wages of skilled mechanics have declined at least 25 per cent., and there has been less demand for labor generally, except in connection with fruit raising and harvesting. It would be unwise for laborers to go to California on an uncertainty, but it can be said of that country with more confidence than of any other section that its peculiar industries, now daily increasing, will absorb an increasing amount of day labor, and later on it will remunerate skilled artisan labor.

In deciding whether Southern California would be an agreeable place of residence there are other things to be considered besides the productiveness of the soil, the variety of products, the ease of out-door labor distributed through the year, the certainty of returns for intelligent investment with labor, the equability of summer and winter, and the adaptation to personal health. There are always disadvantages attending the development of a new country and the evolution of a

new society. It is not a small thing, and may be one of daily discontent, the change from a landscape clad with verdure, the riotous and irrepressible growth of a rainy region, to a land that the greater part of the year is green only where it is artificially watered, where all

GARDEN SCENE, SANTA ANA.

the hills and unwatered plains are brown and sere, where the foliage is coated with dust, and where driving anywhere outside the sprinkled avenues of a town is to be enveloped in a cloud of powdered earth. This

discomfort must be weighed against the commercial advantages of a land of irrigation.

What are the chances for a family of very moderate means to obtain a foothold and thrive by farming in Southern California? I cannot answer this better than by giving substantially the experience of one family, and by saying that this has been paralleled, with change of details, by many others. Of course, in a highly developed settlement, where the land is mostly cultivated, and its actual yearly produce makes its price very high, it is not easy to get a foothold. But there are many regions—say in Orange County, and certainly in San Diego—where land can be had at a moderate price and on easy terms of payment. Indeed, there are few places, as I have said, where an industrious family would not find welcome and cordial help in establishing itself. And it must be remembered that there are many communities where life is very simple, and the great expense of keeping up an appearance attending life elsewhere need not be reckoned.

A few years ago a professional man in a New England city, who was in delicate health, with his wife and five boys, all under sixteen, and one too young to be of any service, moved to San Diego. He had in money a small sum, less than a thousand dollars. He had no experience in farming or horticulture, and his health would not have permitted him to do much field work in our climate. Fortunately he found in the fertile El Cajon Valley, fifteen miles from San Diego, a farmer and fruit-grower, who had upon his place a small unoccupied house. Into that house he moved, furnishing it very simply with furniture bought in San

Diego, and hired his services to the landlord. The work required was comparatively easy, in the orchard and vineyards, and consisted largely in superintending other laborers. The pay was about enough to support his family without encroaching on his little capital. Very soon, however, he made an arrangement to buy the small house and tract of some twenty acres on which he lived, on time, perhaps making a partial payment. He began at once to put out an orange orchard and plant a vineyard; this he accomplished with the assistance of his boys, who did practically most of the work after the first planting, leaving him a chance to give most of his days to his employer. The orchard and vineyard work is so light that a smart, intelligent boy is almost as valuable a worker in the field as a man. The wife, meantime, kept the house and did its work. House-keeping was comparatively easy; little fuel was required except for cooking; the question of clothes was a minor one. In that climate wants for a fairly comfortable existence are fewer than with us. From the first, almost, vegetables, raised upon the ground while the vines and oranges were growing, contributed largely to the support of the family. The out-door life and freedom from worry insured better health, and the diet of fruit and vegetables, suitable to the climate, reduced the cost of living to a minimum. As soon as the orchard and the vineyard began to produce fruit, the owner was enabled to quit working for his neighbor, and give all his time to the development of his own place. He increased his planting; he added to his house; he bought a piece of land adjoining which had a grove of eucalyptus, which would supply him with fuel. At first the society cir-

cle was small, and there was no school; but the incoming of families had increased the number of children, so that an excellent public school was established. When I saw him he was living in conditions of comfortable industry; his land had trebled in value; the pair of horses which he drove he had bought cheap, for they were Eastern horses; but the climate had brought them up, so that the team was a serviceable one in good condition. The story is not one of brilliant success, but to me it is much more hopeful for the country than the other tales I heard of sudden wealth or lucky speculation. It is the founding in an unambitious way of a comfortable home. The boys of the family will branch out, get fields, orchards, vineyards of their own, and add to the solid producing industry of the country. This orderly, contented industry, increasing its gains day by day, little by little, is the life and hope of any State

CHAPTER XI.

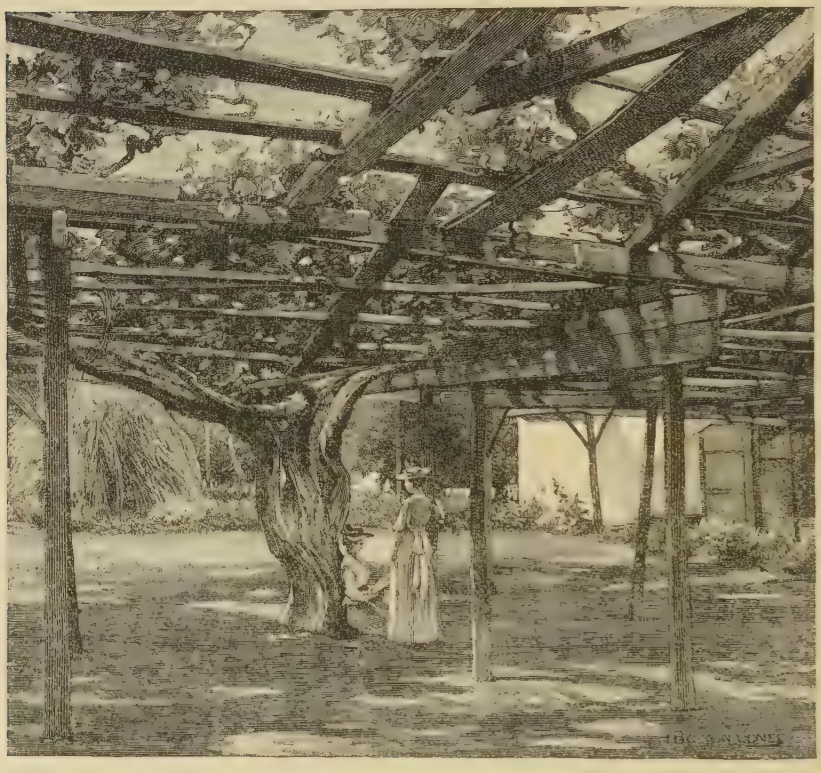
SOME DETAILS OF THE WONDERFUL DEVELOPMENT.

It is not the purpose of this volume to describe Southern California. That has been thoroughly done; and details, with figures and pictures in regard to every town and settlement, will be forthcoming on application, which will be helpful guides to persons who can see for themselves, or make sufficient allowance for local enthusiasm. But before speaking further of certain industries south of the great mountain ranges, the region north of the Sierra Madre, which is allied to Southern California by its productions, should be mentioned. The beautiful antelope plains and the Kern Valley (where land is still cheap and very productive) should not be overlooked. The splendid San Joaquin Valley is already speaking loudly and clearly for itself. The region north of the mountains of Kern County, shut in by the Sierra Nevada range on the east and the Coast Range on the west, substantially one valley, fifty to sixty miles in breadth, watered by the King and the San Joaquin, and gently sloping to the north, say for two hundred miles, is a land of marvellous capacity, capable of sustaining a dense population. It is cooler in winter than Southern California, and the summers average much warmer. Owing to the greater heat, the fruits mature sooner. It is just now becoming celebrated for its raisins, which in qual-

ity are unexcelled; and its area, which can be well irrigated from the rivers and from the mountains on either side, seems capable of producing raisins enough to supply the world. It is a wonderfully rich valley in a great variety of products. Fresno County, which occupies the centre of this valley, has 1,200,000 acres of agricultural and 4,400,000 of mountain and pasture land. The city of Fresno, which occupies land that in 1870 was a sheep ranch, is the commercial centre of a beautiful agricultural and fruit region, and has a population estimated at 12,000. From this centre were shipped in the season of 1890, 1500 car-loads of raisins. In 1865 the only exports of Fresno County were a few bales of wool. The report of 1889 gave a shipment of 700,000 boxes of raisins, and the whole export of 1890, of all products, was estimated at $10,000,000. Whether these figures are exact or not, there is no doubt of the extraordinary success of the raisin industry, nor that this is a region of great activity and promise.

The traveller has constantly to remind himself that this is a new country, and to be judged as a new country. It is out of his experience that trees can grow so fast, and plantations in so short a time put on an appearance of maturity. When he sees a roomy, pretty cottage overrun with vines and flowering plants, set in the midst of trees and lawns and gardens of tropical appearance and luxuriance, he can hardly believe that three years before this spot was desert land. When he looks over miles of vineyards, of groves of oranges, olives, walnuts, prunes, the trees all in vigorous bearing, he cannot believe that five or ten years before the whole region was a waste. When he enters a handsome village, with substantial buildings of brick, and

perhaps of stone, with fine school-houses, banks, hotels, an opera-house, large packing-houses, and warehouses and shops of all sorts, with tasteful dwellings and lovely ornamented lawns, it is hard to understand



A GRAPE-VINE, MONTECITO VALLEY, SANTA BARBARA.

that all this is the creation of two or three years. Yet these surprises meet the traveller at every turn, and the wonder is that there is not visible more crudeness, eccentric taste, and evidence of hasty beginnings.

San Bernardino is comparatively an old town. It

was settled in 1853 by a colony of Mormons from Salt Lake. The remains of this colony, less than a hundred, still live here, and have a church like the other sects, but they call themselves Josephites, and do not practise polygamy. There is probably not a sect or schism in the United States that has not its representative in California. Until 1865 San Bernardino was merely a straggling settlement, and a point of distribution for Arizona. The discovery that a large part of the county was adapted to the orange and the vine, and the advent of the Santa Fé railway, changed all that. Land that then might have been bought for $4 an acre is now sold at from $200 to $300, and the city has become the busy commercial centre of a large number of growing villages, and of one of the most remarkable orange and vine districts in the world. It has many fine buildings, a population of about 6000, and a decided air of vigorous business. The great plain about it is mainly devoted to agricultural products, which are grown without irrigation, while in the near foot-hills the orange and the vine flourish by the aid of irrigation. Artesian-wells abound in the San Bernardino plain, but the mountains are the great and unfailing source of water supply. The Bear Valley Dam is a most daring and gigantic construction. A solid wall of masonry, 300 feet long and 60 feet high, curving towards the reservoir, creates an inland lake in the mountains holding water enough to irrigate 20,000 acres of land. This is conveyed to distributing reservoirs in the east end of the valley. On a terrace in the foot-hills a few miles to the north, 2000 feet above the sea, are the Arrow-head Hot Springs (named from the figure of a gigantic "arrow-head" on the mount-

ain above), already a favorite resort for health and pleasure. The views from the plain of the picturesque foot-hills and the snow-peaks of the San Bernardino range are exceedingly fine. The marvellous beauty of the purple and deep violet of the giant hills at sunset, with spotless snow, lingers in the memory.

Perhaps the settlement of Redlands, ten miles by rail east of San Bernardino, is as good an illustration as any of rapid development and great promise. It is devoted to the orange and the grape. As late as 1875 much of it was Government land, considered valueless. It had a few settlers, but the town, which counts now about 2000 people, was only begun in 1887. It has many solid brick edifices and many pretty cottages on its gentle slopes and rounded hills, overlooked by the great mountains. The view from any point of vantage of orchards and vineyards and semi-tropical gardens, with the wide sky-line of noble and snow-clad hills, is exceedingly attractive. The region is watered by the Santa Ana River and Mill Creek, but the main irrigating streams, which make every hill-top to bloom with vegetation, come from the Bear Valley Reservoir. On a hill to the south of the town the Smiley Brothers, of Catskill fame, are building fine residences, and planting their 125 acres with fruit-trees and vines, evergreens, flowers, and semi-tropic shrubbery in a style of landscape-gardening that in three years at the furthest will make this spot one of the few great show-places of the country. Behind their ridge is the San Mateo Cañon, through which the Southern Pacific Railway runs, while in front are the splendid sloping plains, valleys, and orange groves, and the great sweep of mountains from San Jacinto round to the Sierra

Madre range. It is almost a matchless prospect. The climate is most agreeable, the plantations increase month by month, and thus far the orange-trees have not been visited by the scale, nor the vines by any sickness. Although the groves are still young, there were shipped from Redlands in the season of 1889–90 80 car-loads of oranges, of 286 boxes to the car, at a price averaging nearly $1000 a car. That season's planting of oranges was over 1200 acres. It had over 5000 acres in fruits, of which nearly 3000 were in peaches, apricots, grapes, and other sorts called deciduous.

Riverside may without prejudice be regarded as the centre of the orange growth and trade. The railway shipments of oranges from Southern California in the season of 1890 aggregated about 2400 car-loads, or about 800,000 boxes, of oranges (in which estimate the lemons are included), valued at about $1,500,000. Of this shipment more than half was from Riverside. This has been, of course, greatly stimulated by the improved railroad facilities, among them the shortening of the time to Chicago by the Santa Fé route, and the running of special fruit trains. Southern California responds like magic to this chance to send her fruits to the East, and the area planted month by month is something enormous. It is estimated that the crop of oranges alone in 1891 will be over 4500 car-loads. We are accustomed to discount all California estimates, but I think that no one yet has comprehended the amount to which the shipments to Eastern markets of vegetables and fresh and canned fruits will reach within five years. I base my prediction upon some observation of the Eastern demand and the re-

ports of fruit-dealers, upon what I saw of the new planting all over the State in 1890, and upon the statistics of increase. Take Riverside as an example. In 1872 it was a poor sheep ranch. In 1880–81 it shipped 15 car-loads, or 4290 boxes, of oranges; the amount yearly increased, until in 1888–89 it was 925 car-loads, or 263,879 boxes. In 1890 it rose to 1253 car-loads, or 358,341 boxes; and an important fact is that the largest shipment was in April (455 car-loads, or 130,226 boxes), at the time when the supply from other orange regions for the markets East had nearly ceased.

It should be said, also, that the quality of the oranges has vastly improved. This is owing to better cultivation, knowledge of proper irrigation, and the adoption of the best varieties for the soil. As different sorts of oranges mature at different seasons, a variety is needed to give edible fruit in each month from December to May inclusive. In February, 1887, I could not find an orange of the first class compared with the best fruit in other regions. It may have been too early for the varieties I tried; but I believe there has been a marked improvement in quality. In May, 1890, we found delicious oranges almost everywhere. The seedless Washington and Australian navels are favorites, especially for the market, on account of their

IRRIGATING AN ORCHARD.

ORANGE CULTURE.

Packing Oranges—Navel Orange-tree Six Years Old—Irrigating an Orange Grove.

great size and fine color. When in perfection they are very fine, but the skin is thick and the texture coarser than that of some others. The best orange I happened to taste was a Tahiti seedling at Montecito (Santa Barbara). It is a small orange, with a thin skin and a compact, sweet pulp that leaves little fibre. It resembles the famous orange of Malta. But there are many excellent varieties — the Mediterranean sweet, the paper rind St. Michael, the Maltese blood, etc. The experiments with seedlings are profitable, and will give ever new varieties. I noted that the "grape fruit," which is becoming so much liked in the East, is not appreciated in California.

The city of Riverside occupies an area of some five miles by three, and claims to have 6000 inhabitants; the centre is a substantial town with fine school and other public buildings, but the region is one succession of orange groves and vineyards, of comfortable houses and broad avenues. One avenue through which we drove is 125 feet wide and 12 miles long, planted in three rows with palms, magnolias, the *Grevillea robusta* (Australian fern), the pepper, and the eucalyptus, and lined all the way by splendid orange groves, in the midst of which are houses and grounds with semi-tropical attractions. Nothing could be lovelier than such a scene of fruits and flowers, with the background of purple hills and snowy peaks. The mountain views are superb. Frost is a rare visitor. Not in fifteen years has there been enough to affect the orange. There is little rain after March, but there are fogs and dew-falls, and the ocean breeze is felt daily. The grape grown for raisins is the muscat, and this has had no "sickness." Vigilance and a quarantine

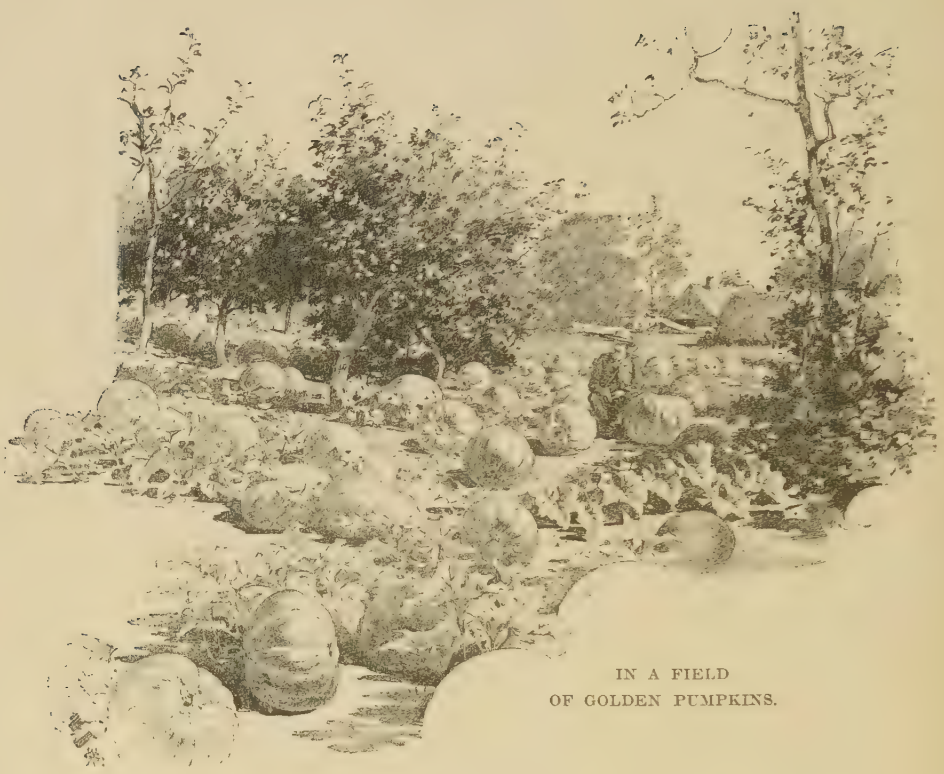
have also kept from the orange the scale which has been so annoying in some other localities. The orange, when cared for, is a generous bearer; some trees produce twenty boxes each, and there are areas of twenty acres in good bearing which have brought to the owner as much as $10,000 a year.

The whole region of the Santa Ana and San Gabriel valleys, from the desert on the east to Los Angeles, the city of gardens, is a surprise, and year by year an increasing wonder. In production it exhausts the catalogue of fruits and flowers; its scenery is varied by ever new combinations of the picturesque and the luxuriant; every town boasts some special advantage in climate, soil, water, or society; but these differences, many of them visible to the eye, cannot appear in any written description. The traveller may prefer the scenery of Pasadena, or that of Pomona, or of Riverside, but the same words in regard to color, fertility, combinations of orchards, avenues, hills, must appear in the description of each. Ontario, Pomona, Puente, Alhambra—wherever one goes there is the same wonder of color and production.

Pomona is a pleasant city in the midst of fine orange groves, watered abundantly by artesian-wells and irrigating ditches from a mountain reservoir. A specimen of the ancient adobe residence is on the Meserve plantation, a lovely old place, with its gardens of cherries, strawberries, olives, and oranges. From the top of San José hill we had a view of a plain twenty-five miles by fifty in extent, dotted with cultivation, surrounded by mountains—a wonderful prospect. Pomona, like its sister cities in this region, has a regard for the intellectual side of life, exhibited in

good school-houses and public libraries. In the library of Pomona is what may be regarded as the tutelary deity of the place—the goddess Pomona, a good copy in marble of the famous statue in the Uffizi Gallery, presented to the city by the Rev. C. F. Loop. This enterprising citizen is making valuable experiments in olive culture, raising a dozen varieties in order to ascertain which is best adapted to this soil, and which will make the best return in oil and in a marketable product of cured fruit for the table.

The growth of the olive is to be, it seems to me, one of the leading and most permanent industries of Southern California. It will give us, what it is nearly impossible to buy now, pure olive oil, in place of the cotton-seed and lard mixture in general use. It is a most wholesome and palatable article of food. Those whose chief experience of the olive is the large, coarse, and not agreeable Spanish variety, used only as an appetizer, know little of the value of the best varieties as food, nutritious as meat, and always delicious. Good bread and a dish of pickled olives make an excellent meal. The sort known as the Mission olive, planted by the Franciscans a century ago, is generally grown now, and the best fruit is from the older trees. The most successful attempts in cultivating the olive and putting it on the market have been made by Mr. F. A. Kimball, of National City, and Mr. Ellwood Cooper, of Santa Barbara. The experiments have gone far enough to show that the industry is very remunerative. The best olive oil I have ever tasted anywhere is that produced from the Cooper and the Kimball orchards; but not enough is produced to supply the local demand. Mr. Cooper has written a careful trea-



IN A FIELD
OF GOLDEN PUMPKINS.

tise on olive culture, which will be of great service to all growers. The art of pickling is not yet mastered, and perhaps some other variety will be preferred to the old Mission for the table. A mature olive grove in good bearing is a fortune. I feel sure that within twenty-five years this will be one of the most profitable industries of California, and that the demand for pure oil and edible fruit in the United States will drive out the adulterated and inferior present commercial products. But California can easily ruin its reputation by adopting the European systems of adulteration.

We drove one day from Arcadia Station through

the region occupied by the Baldwin plantations, an area of over fifty thousand acres—a happy illustration of what industry and capital can do in the way of variety of productions, especially in what are called the San Anita vineyards and orchards, extending southward from the foot-hills. About the home place and in many sections where the irrigating streams flow one might fancy he was in the tropics, so abundant and brilliant are the flowers and exotic plants. There are splendid orchards of oranges, almonds, English walnuts, lemons, peaches, apricots, figs, apples, and olives, with grain and corn—in short, everything that grows in garden or field. The ranch is famous for its brandies and wines as well as fruits. We lunched at the East San Gabriel Hotel, a charming place with a peaceful view from the wide veranda of live-oaks, orchards, vineyards, and the noble Sierra Madre range. The Californians may be excused for using the term paradisiacal about such scenes. Flowers, flowers everywhere, color on color, and the song of the mockingbird!

CHAPTER XII.

HOW THE FRUIT PERILS WERE MET. — FURTHER DETAILS OF LOCALITIES.

In the San Gabriel Valley and elsewhere I saw evidence of the perils that attend the culture of the vine and the fruit-tree in all other countries, and from which California in the early days thought it was exempt. Within the past three or four years there has prevailed a sickness of the vine, the cause of which is unknown, and for which no remedy has been discovered. No blight was apparent, but the vine sickened and failed. The disease was called consumption of the vine. I saw many vineyards subject to it, and hundreds of acres of old vines had been rooted up as useless. I was told by a fruit-buyer in Los Angeles that he thought the raisin industry below Fresno was ended unless new planting recovered the vines, and that the great wine fields were about "played out." The truth I believe to be that the disease is confined to the vineyards of Old Mission grapes. Whether these had attained the limit of their active life, and sickened, I do not know. The trouble for a time was alarming; but new plantings of other varieties of grapes have been successful, the vineyards look healthful, and the growers expect no further difficulty. The planting, which was for a time suspended, has been more vigorously renewed.

The insect pests attacking the orange were even more serious, and in 1887–88, though little was published about it, there was something like a panic, in the fear that the orange and lemon culture in Southern California would be a failure. The enemies were the black, the red, and the white scale. The latter, the *icerya purchasi*, or cottony cushion scale, was especially loathsome and destructive; whole orchards were enfeebled, and no way was discovered of staying its progress, which threatened also the olive and every other tree, shrub, and flower. Science was called on to discover its parasite. This was found to be the Australian lady-bug (*vedolia cardinalis*), and in 1888–89 quantities of this insect were imported and spread throughout Los Angeles County, and sent to Santa Barbara and other afflicted districts. The effect was magical. The *vedolia* attacked the cottony scale with intense vigor, and everywhere killed it. The orchards revived as if they had been recreated, and the danger was over. The enemies of the black and the red scale have not yet been discovered, but they probably will be. Meantime the growers have recovered courage, and are fertilizing and fumigating. In Santa Ana I found that the red scale was fought successfully by fumigating the trees. The operation is performed at night under a movable tent, which covers the tree. The cost is about twenty cents a tree. One lesson of all this is that trees must be fed in order to be kept vigorous to resist such attacks, and that fruit-raising, considering the number of enemies that all fruits have in all climates, is not an idle occupation. The clean, handsome English walnut is about the only tree in the State that thus far has no enemy.

One cannot take anywhere else a more exhilarating, delightful drive than about the rolling, highly cultivated, many-villaed Pasadena, and out to the foothills and the Sierra Madre Villa. He is constantly exclaiming at the varied loveliness of the scene—oranges, palms, formal gardens, hedges of Monterey cypress. It is very Italy-like. The Sierra Madre furnishes abundant water for all the valley, and the swift irrigating stream from Eaton Cañon waters the Sierra Madre Villa. Among the peaks above it rises Mt. Wilson, a thousand feet above the plain, the site selected for the Harvard Observatory with its 40-inch glass. The clearness of the air at this elevation, and the absence of clouds night and day the greater portion of the year, make this a most advantageous position, it is said, to use the glass in dissolving nebulæ. The Sierra Madre Villa, once the most favorite resort in this region, was closed. In its sheltered situation, its luxuriant and half-neglected gardens, its wide plantations and irrigating streams, it reminds one of some secularized monastery on the promontory of Sorrento. It only needs good management to make the hotel very attractive and especially agreeable in the months of winter.

Pasadena, which exhibits everywhere evidences of wealth and culture, and claims a permanent population of 12,000, has the air of a winter resort; the great Hotel Raymond is closed in May, the boarding-houses want occupants, the shops and livery-stables customers, and the streets lack movement. This is easily explained. It is not because Pasadena is not an agreeable summer residence, but because the visitors are drawn there in the winter principally to escape the

PACKING CHERRIES, POMONA.

inclement climate of the North and East, and because special efforts have been made for their entertainment in the winter. We found the atmosphere delightful in the middle of May. The mean summer heat is 67°, and the nights are always cool. The hills near by may be resorted to with the certainty of finding as decided a change as one desires in the summer season. I must repeat that the Southern California summer is not at all understood in the East. The statement of the general equability of the temperature the year through must be insisted on. We lunched one day in a typical California house, in the midst of a garden of fruits, flowers, and tropical shrubs; in a house that might be described as half roses and half tent, for added to the wooden structure were rooms of canvas, which are used as sleeping apartments winter and summer.

This attractive region, so lovely in its cultivation, with so many charming drives, offering good shooting on the plains and in the hills, and centrally placed for excursions, is only eight miles from the busy city of Los Angeles. An excellent point of view of the country is from the graded hill on which stands the Raymond Hotel, a hill isolated but easy of access, which is in itself a mountain of bloom, color, and fragrance. From all the broad verandas and from every window the prospect is charming, whether the eye rests upon cultivated orchards and gardens and pretty villas, or upon the purple foot-hills and the snowy ranges. It enjoys a daily ocean breeze, and the air is always exhilarating. This noble hill is a study in landscape-gardening. It is a mass of brilliant color, and the hospitality of the region generally to foreign growths may be estimated by the trees acclimated on these slopes.

They are the pepper, eucalyptus, pine, cyprus, sycamore, red-wood, olive, date and fan palms, banana, pomegranate, guava, Japanese persimmon, umbrella, maple, elm, locust, English walnut, birch, ailantus, poplar, willow, and more ornamental shrubs than one can well name.

I can indulge in few locality details except those which are illustrative of the general character of the country. In passing into Orange County, which was recently set off from Los Angeles, we come into a region of less "fashion," but one that for many reasons is attractive to people of moderate means who are content with independent simplicity. The country about the thriving village of Santa Ana is very rich, being abundantly watered by the Santa Ana River and by artesian-wells. The town is nine miles from the ocean. On the ocean side the land is mainly agricultural; on the inland side it is specially adapted to fruit. We drove about it, and in Tustin City, which has many pleasant residences and a vacant "boom" hotel, through endless plantations of oranges. On the road towards Los Angeles we passed large herds of cattle and sheep, and fine groves of the English walnut, which thrives especially well in this soil and the neighborhood of the sea. There is comparatively little waste land in this valley district, as one may see by driving through the country about Santa Ana, Orange, Anaheim, Tustin City, etc. Anaheim is a prosperous German colony. It was here that Madame Modjeska and her husband, Count Bozenta, first settled in California. They own and occupy now a picturesque ranch in the Santiago Cañon of the Santa Ana range, twenty-two miles from Santa Ana. This

is one of the richest regions in the State, and with its fair quota of working population, it will be one of the most productive.

From Newport, on the coast, or from San Pedro, one may visit the island of Santa Catalina. Want of time prevented our going there. Sportsmen enjoy there the exciting pastime of hunting the wild goat. From the photographs I saw, and from all I heard of it, it must be as picturesque a resort in natural beauty as the British Channel islands.

Los Angeles is the metropolitan centre of all this region. A handsome, solid, thriving city, environed by gardens, gay everywhere with flowers, it is too well known to require any description from me. To the traveller from the East it will always be a surprise. Its growth has been phenomenal, and although it may not equal the expectations of the crazy excitement of 1886-87, 50,000 people is a great assemblage for a new city which numbered only about 11,000 in 1880. It of course felt the subsidence of the "boom," but while I missed the feverish crowds of 1887, I was struck with its substantial progress in fine, solid buildings, pavements, sewerage, railways, educational facilities, and ornamental grounds. It has a secure hold on the commerce of the region. The assessment roll of the city increased from $7,627,632 in 1881 to $44,871,073 in 1889. Its bank business, public buildings, schoolhouses, and street improvements are in accord with this increase, and show solid, vigorous growth. It is altogether an attractive city, whether seen on a drive through its well-planted and bright avenues, or looked down on from the hills which are climbed by the cable roads. A curious social note was the effect of the

"boom" excitement upon the birth rate. The report of children under the age of one year was in 1887, 271 boy babies and 264 girl babies; from 1887 to 1888 there were only 176 boy babies and 162 girl babies. The return at the end of 1889 was 465 boy babies, and 500 girl babies.

Although Los Angeles County still produces a considerable quantity of wine and brandy, I have an im-

OLIVE-TREES SIX YEARS OLD.

pression that the raising of raisins will supplant wine-making largely in Southern California, and that the principal wine producing will be in the northern portions of the State. It is certain that the best quality is

grown in the foot-hills. The reputation of "California wines" has been much injured by placing upon the market crude juice that was in no sense wine. Great improvement has been made in the past three to five years, not only in the vine and knowledge of the soil adapted to it, but in the handling and the curing of the wine. One can now find without much difficulty excellent table wines—sound claret, good white Reisling, and sauterne. None of these wines are exactly like the foreign wines, and it may be some time before the taste accustomed to foreign wines is educated to like them. But in Eastern markets some of the best brands are already much called for, and I think it only a question of time and a little more experience when the best California wines will be popular. I found in the San Francisco market excellent red wines at $3.50 the case, and what was still more remarkable, at some of the best hotels sound, agreeable claret at from fifteen to twenty cents the pint bottle.

It is quite unnecessary to emphasize the attractions of Santa Barbara, or the productiveness of the valleys in the counties of Santa Barbara and Ventura. There is no more poetic region on the continent than the bay south of Point Conception, and the pen and the camera have made the world tolerably familiar with it. There is a graciousness, a softness, a color in the sea, the cañons, the mountains there that dwell in the memory. It is capable of inspiring the same love that the Greek colonists felt for the region between the bays of Salerno and Naples. It is as fruitful as the Italian shores, and can support as dense a population. The figures that have been given as to productiveness and variety of productions apply to it. Hav-

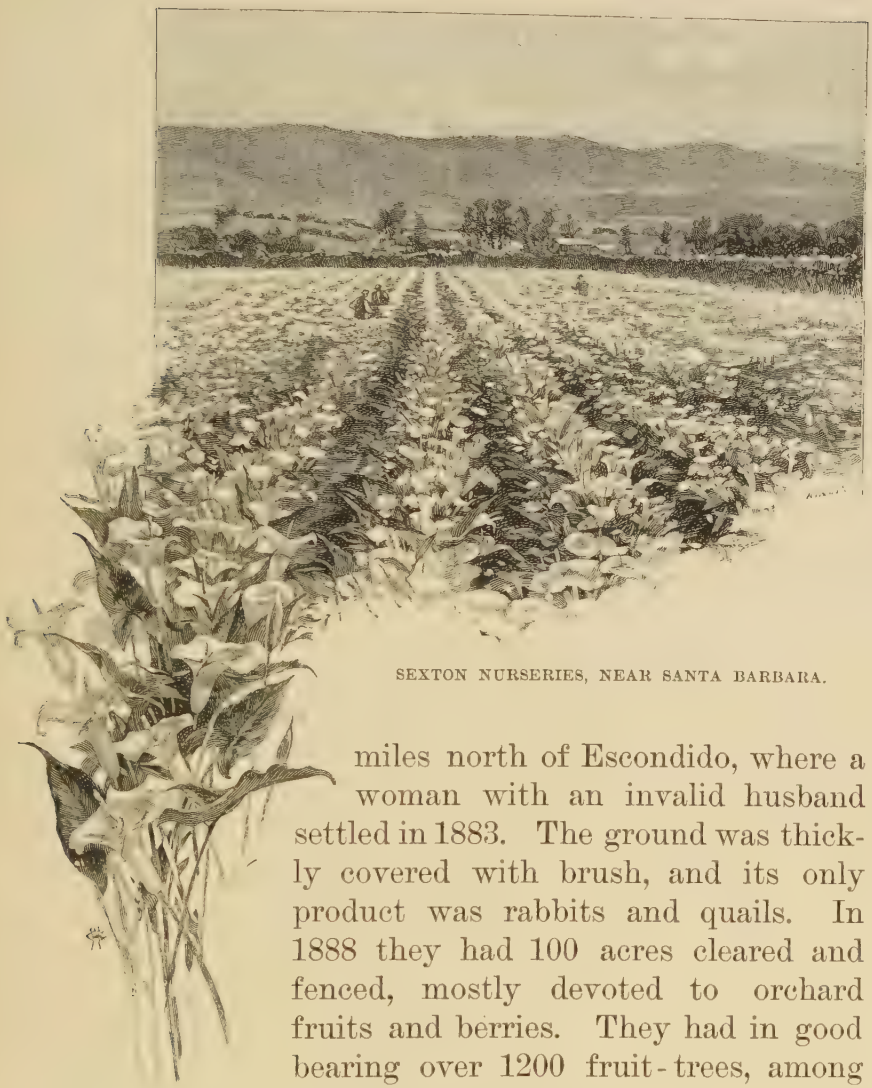
ing more winter rainfall than the counties south of it, agriculture is profitable in most years. Since the railway was made down the valley of the Santa Clara River and along the coast to Santa Barbara, a great impulse has been given to farming. Orange and other fruit orchards have increased. Near Buenaventura I saw hundreds of acres of lima beans. The yield is about one ton to the acre. With good farming the valleys yield crops of corn, barley, and wheat much above the average. Still it is a fruit region, and no variety has yet been tried that does not produce very well there. The rapid growth of all trees has enabled the region to demonstrate in a short time that there is scarcely any that it cannot naturalize. The curious growths of tropical lands, the trees of aromatic and medicinal gums, the trees of exquisite foliage and wealth of fragrant blossoms, the sturdy forest natives, and the bearers of edible nuts are all to be found in the gardens and by the road-side, from New England, from the Southern States, from Europe, from North and South Africa, Southern Asia, China, Japan, from Australia and New Zealand and South America. The region is an arboreal and botanical garden on an immense scale, and full of surprises. The floriculture is even more astonishing. Every land is represented. The profusion and vigor are as wonderful as the variety. At a flower show in Santa Barbara were exhibited 160 varieties of roses all cut from one garden the same morning. The open garden rivals the Eastern conservatory. The country is new and many of the conditions of life may be primitive and rude, but it is impossible that any region shall not be beautiful, clothed with such a profusion of bloom and color.

I have spoken of the rapid growth. The practical advantage of this as to fruit-trees is that one begins to have an income from them here sooner than in the East. No one need be under the delusion that he can live in California without work, or thrive without incessant and intelligent industry, but the distinction of the country for the fruit-grower is the rapidity with which trees and vines mature to the extent of being profitable. But nothing thrives without care, and kindly as the climate is to the weak, it cannot be too much insisted on that this is no place for confirmed invalids who have not money enough to live without work.

CHAPTER XIII.

THE ADVANCE OF CULTIVATION SOUTHWARD.

The immense county of San Diego is on the threshold of its development. It has comparatively only spots of cultivation here and there, in an area on the western slope of the county only, that Mr. Van Dyke estimates to contain about one million acres of good arable land for farming and fruit-raising. This mountainous region is full of charming valleys, and hidden among the hills are fruitful nooks capable of sustaining thriving communities. There is no doubt about the salubrity of the climate, and one can literally suit himself as to temperature by choosing his elevation. The traveller by rail down the wild Temecula Cañon will have some idea of the picturesqueness of the country, and, as he descends in the broadening valley, of the beautiful mountain parks of live-oak and clear running water, and of the richness both for grazing and grain of the ranches of the Santa Margarita, Las Flores, and Santa Rosa. Or if he will see what a few years of vigorous cultivation will do, he may visit Escondido, on the river of that name, which is at an elevation of less than a thousand feet, and fourteen miles from the ocean. This is only one of many settlements that have great natural beauty and thrifty industrial life. In that region are numerous attractive villages. I have a report from a little cañon, a few



SEXTON NURSERIES, NEAR SANTA BARBARA.

miles north of Escondido, where a woman with an invalid husband settled in 1883. The ground was thickly covered with brush, and its only product was rabbits and quails. In 1888 they had 100 acres cleared and fenced, mostly devoted to orchard fruits and berries. They had in good bearing over 1200 fruit-trees, among them 200 oranges and 283 figs, which yielded one and a half tons of figs a week during the bearing season, from August to November. The sprouts of the peach-trees grew twelve feet in 1889. Of course such a little fruit farm as this is the result

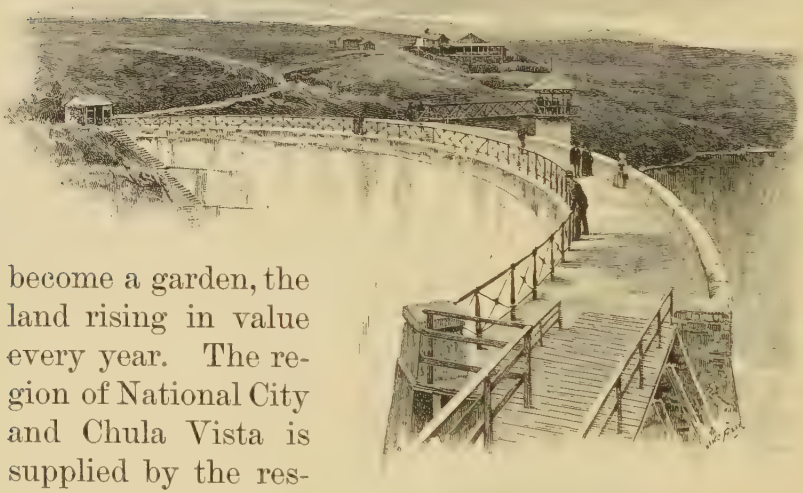
of self-denial and hard work, but I am sure that the experiment in this region need not be exceptional.

San Diego will be to the southern part of the State what San Francisco is to the northern. Nature seems to have arranged for this, by providing a magnificent harbor, when it shut off the southern part by a mountain range. During the town-lot lunacy it was said that San Diego could not grow because it had no back country, and the retort was that it needed no back country, its harbor would command commerce. The fallacy of this assumption lay in the forgetfulness of the fact that the profitable and peculiar exports of Southern California must go East by rail, and reach a market in the shortest possible time, and that the inhabitants look to the Pacific for comparatively little of the imports they need. If the Isthmus route were opened by a ship-canal, San Diego would doubtless have a great share of the Pacific trade, and when the population of that part of the State is large enough to demand great importations from the islands and lands of the Pacific, this harbor will not go begging. But in its present development the entire Pacific trade of Japan, China, and the islands, gives only a small dividend each to the competing ports. For these developments this fine harbor must wait, but meantime the wealth and prosperity of San Diego lie at its doors. A country as large as the three richest New England States, with enormous wealth of mineral and stone in its mountains, with one of the finest climates in the world, with a million acres of arable land, is certainly capable of building up one great seaport town. These million of acres on the western slope of the mountain ranges of the country are geographically tributary to

San Diego, and almost every acre by its products is certain to attain a high value.

The end of the ridiculous speculation in lots of 1887–88 was not so disastrous in the loss of money invested, or even in the ruin of great expectations by the collapse of fictitious values, as in the stoppage of immigration. The country has been ever since adjusting itself to a normal growth, and the recovery is just in proportion to the arrival of settlers who come to work and not to speculate. I had heard that the "boom" had left San Diego and vicinity the "deadest" region to be found anywhere. A speculator would probably so regard it. But the people have had a great accession of common-sense. The expectation of attracting settlers by a fictitious show has subsided, and attention is directed to the development of the natural riches of the country. Since the boom San Diego has perfected a splendid system of drainage, paved its streets, extended its railways, built up the business part of the town solidly and handsomely, and greatly improved the mesa above the town. In all essentials of permanent growth it is much better in appearance than in 1887. Business is better organized, and, best of all, there is an intelligent appreciation of the agricultural resources of the country. It is discovered that San Diego has a "back country" capable of producing great wealth. The Chamber of Commerce has organized a permanent exhibition of products. It is assisted in this work of stimulation by competition by a "Ladies' Annex," a society numbering some five hundred ladies, who devote themselves not to æsthetic pursuits, but to the quickening of all the industries of the farm and the garden, and all public improvements.

To the mere traveller who devotes only a couple of weeks to an examination of this region it is evident that the spirit of industry is in the ascendant, and the result is a most gratifying increase in orchards and vineyards, and the storage and distribution of water for irrigation. The region is unsurpassed for the production of the orange, the lemon, the raisin-grape, the fig, and the olive. The great reservoir of the Cuyamaca, which supplies San Diego, sends its flume around the fertile valley of El Cajon (which has already a great reputation for its raisins), and this has become a garden, the land rising in value every year. The region of National City and Chula Vista is supplied by the reservoir made by the great Sweetwater Dam—a marvel of engineering skill—and is not only most productive in fruit, but is attractive by pretty



SWEETWATER DAM.

villas and most sightly and agreeable homes. It is an unanswerable reply to the inquiry if this region was not killed by the boom that all the arable land, except that staked out for fancy city prices, has steadily risen in value. This is true of all the bay region down through Otay (where a promising watch factory is established) to the border at Tia Juana. The rate of settlement in the county outside of the cities and towns has been greater since the boom than before—a most healthful indication for the future. According to the school census of 1889, Mr. Van Dyke estimates a permanent growth of nearly 50,000 people in the county in four years. Half of these are well distributed in small settlements which have the advantages of roads, mails, and school-houses, and which offer to settlers who wish to work adjacent unimproved land at prices which experience shows are still moderate.

CHAPTER XIV.

A LAND OF AGREEABLE HOMES.

In this imperfect conspectus of a vast territory I should be sorry to say anything that can raise false expectations. Our country is very big; and though scarcely any part of it has not some advantages, and notwithstanding the census figures of our population, it will be a long time before our vast territory will fill up. California must wait with the rest; but it seems to me to have a great future. Its position in the Union with regard to its peculiar productions is unique. It can and will supply us with much that we now import, and labor and capital sooner or later will find their profit in meeting the growing demand for California products.

There are many people in the United States who could prolong life by moving to Southern California; there are many who would find life easier there by reason of the climate, and because out-door labor is more agreeable there the year through; many who have to fight the weather and a niggardly soil for existence could there have pretty little homes with less expense of money and labor. It is well that people for whom this is true should know it. It need not influence those who are already well placed to try the fortune of a distant country and new associations.

I need not emphasize the disadvantage in regard to

beauty of a land that can for half the year only keep a vernal appearance by irrigation; but to eyes accustomed to it there is something pleasing in the contrast of the green valleys with the brown and gold and red of the hills. The picture in my mind for the future of the Land of the Sun, of the mountains, of the sea—which is only an enlargement of the picture of the present—is one of great beauty. The rapid growth of fruit and ornamental trees and the profusion of flowers render easy the making of a lovely home, however humble it may be. The nature of the industries—requiring careful attention to a small piece of ground—points to small holdings as a rule. The picture I see is of a land of small farms and gardens, highly cultivated, in all the valleys and on the foot-hills; a land, therefore, of luxuriance and great productiveness and agreeable homes. I see everywhere the gardens, the vineyards, the orchards, with the various greens of the olive, the fig, and the orange. It is always picturesque, because the country is broken and even rugged; it is always interesting, because of the contrast with the mountains and the desert; it has the color that makes Southern Italy so poetic. It is the fairest field for the experiment of a contented community, without any poverty and without excessive wealth.

CHAPTER XV.

SOME WONDERS BY THE WAY.—YOSEMITE.—MARIPOSA TREES.—MONTEREY.

I WENT to it with reluctance. I shrink from attempting to say anything about it. If you knew that there was one spot on the earth where Nature kept her secret of secrets, the key to the action of her most gigantic and patient forces through the long eras, the marvel of constructive and destructive energy, in features of sublimity made possible to mental endurance by the most exquisite devices of painting and sculpture, the wonder which is without parallel or comparison, would you not hesitate to approach it? Would you not wander and delay with this and that wonder, and this and that beauty and nobility of scenery, putting off the day when the imagination, which is our highest gift, must be extinguished by the reality? The mind has this judicious timidity. Do we not loiter in the avenue of the temple, dallying with the vista of giant plane-trees and statues, and noting the carving and the color, mentally shrinking from the moment when the full glory shall burst upon us? We turn and look when we are near a summit, we pick a flower, we note the shape of the clouds, the passing breeze, before we take the last step that shall reveal to us the vast panorama of mountains and valleys.

I cannot bring myself to any description of the Grand Cañon of the Colorado by any other route, mental or physical, than that by which we reached it, by the way of such beauty as Monterey, such a wonder as the Yosemite, and the infinite and picturesque deserts of New Mexico and Arizona. I think the mind needs the training in the desert scenery to enable it to grasp the unique sublimity of the Grand Cañon.

The road to the Yosemite, after leaving the branch of the Southern Pacific at Raymond, is an unnecessarily fatiguing one. The journey by stage—sixty-five miles—is accomplished in less than two days—thirty-nine miles the first day, and twenty-six the second. The driving is necessarily slow, because two mountain ridges have to be surmounted, at an elevation each of about 6500 feet. The road is not a "road" at all as the term is understood in Switzerland, Spain, or in any highly civilized region—that is, a graded, smooth, hard, and sufficiently broad track. It is a makeshift highway, generally narrow (often too narrow for two teams to pass), cast up with loose material, or excavated on the slopes with frequent short curves and double curves. Like all mountain roads which skirt precipices, it may seem "pokerish," but it is safe enough if the drivers are skilful and careful (all the drivers on this route are not only excellent, but exceedingly civil as well), and there is no break in wagon or harness. At the season this trip is made the weather is apt to be warm, but this would not matter so much if the road were not intolerably dusty. Over a great part of the way the dust rises in clouds and is stifling. On a well-engineered road, with a good

road-bed, the time of passage might not be shortened, but the journey would be made with positive comfort and enjoyment, for though there is a certain monotony in the scenery, there is the wild freshness of nature, now and then an extensive prospect, a sight of the snow-clad Nevadas, and vast stretches of woodland; and a part of the way the forests are magnificent, especially the stupendous growth of the sugar-pine. These noble forests are now protected by their inaccessibility.

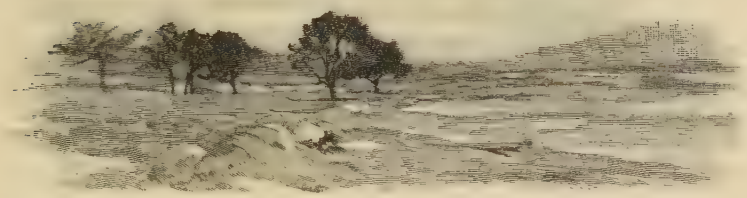
From 1855 to 1864, nine years, the Yosemite had 653 visitors; in 1864 there were 147. The number increased steadily till 1869, the year the overland railroad was completed, when it jumped to 1122. Between 4000 and 5000 persons visit it now each year. The number would be enormously increased if it could be reached by rail, and doubtless a road will be built to the valley in the near future, perhaps up the Merced River. I believe that the pilgrims who used to go to the Yosemite on foot or on horseback regret the building of the stage road, the enjoyment of the wonderful valley being somehow cheapened by the comparative ease of reaching it. It is feared that a railway would still further cheapen, if it did not vulgarize it, and that passengers by train would miss the mountain scenery, the splendid forests, the surprises of the way (like the first view of the valley from Inspiration Point), and that the Mariposa big trees would be farther off the route than they are now. The traveller sees them now by driving eight miles from Wawona, the end of the first day's staging. But the romance for the few there is in staging will have to give way to the greater comfort of the many by

THE YOSEMITE DOME.

rail. The railway will do no more injury to the Yosemite than it has done to Niagara, and, in fact, will be the means of immensely increasing the comfort of the visitor's stay there, besides enabling tens of thousands of people to see it who cannot stand the fatigue of the stage ride over the present road. The Yosemite will remain as it is. The simplicity of its grand features is unassailable so long as the Government protects the forests that surround it and the streams that pour into it. The visitor who goes there by rail will find plenty of adventure for days and weeks in following the mountain trails, ascending to the great points of view, exploring the cañons, or climbing so as to command the vast stretch of the snowy Sierras. Or, if he is not inclined to adventure, the valley itself will satisfy his highest imaginative flights of the sublime in rock masses and perpendicular ledges, and his sense of beauty in the graceful water-falls, rainbow colors, and exquisite lines of domes and pinnacles. It is in the grouping of objects of sublimity and beauty that the Yosemite excels. The narrow valley, with its gigantic walls, which vary in every change of the point of view, lends itself to the most astonishing scenic effects, and these the photograph has reproduced, so that the world is familiar with the striking features of the valley, and has a tolerably correct idea of the sublimity of some of these features. What the photograph cannot do is to give an impression of the unique grouping, of the majesty, and at times crushing weight upon the mind of the forms and masses, of the atmospheric splendor and illusion, and of the total value of such an assemblage of wonders. The level surface of the peaceful, park-like valley has much

to do with the impression. The effect of El Capitan, seen across a meadow and rising from a beautiful park, is much greater than if it were encountered in a savage mountain gorge. The traveller may have seen elsewhere greater water-falls, and domes and spires of rock as surprising, but he has nowhere else seen such a combination as this. He may be fortified against surprise by the photographs he has seen and the reports of word painters, but he will not escape (say, at Inspiration Point, or Artist Point, or other lookouts), a quickening of the pulse and an elation which is physical as well as mental, in the sight of such unexpected sublimity and beauty. And familiarity will scarcely take off the edge of his delight, so varied are the effects in the passing hours and changing lights. The Rainbow Fall, when water is abundant, is exceedingly impressive as well as beautiful. Seen from the carriage road, pouring out of the sky overhead, it gives a sense of power, and at the proper hour before sunset, when the vast mass of leaping, foaming water is shot through with the colors of the spectrum, it is one of the most exquisite sights the world can offer; the elemental forces are overwhelming, but the loveliness is engaging. One turns from this to the noble mass of El Capitan with a shock of surprise, however often it may have been seen. This is the hour also, in the time of high-water, to see the reflection of the Yosemite Falls. As a spectacle it is infinitely finer than anything at Mirror Lake, and is unique in its way. To behold this beautiful series of falls, flowing down out of the blue sky above, and flowing up out of an equally blue sky in the depths of the earth, is a sight not to be forgotten.

And when the observer passes from these displays to the sight of the aerial domes in the upper end of the valley, new wonders opening at every turn of the forest road, his excitement has little chance of subsiding: he may be even a little oppressed. The valley, so ver-



COAST OF MONTEREY.

dant and friendly with grass and trees and flowers, is so narrow compared with the height of its perpendicular guardian walls, and this little secluded spot is so imprisoned in the gigantic mountains, that man has a feeling of helplessness in it. This powerlessness in the presence of elemental forces was heightened by the deluge of water. There had been an immense fall of snow the winter before, the Merced was a raging torrent, overflowing its banks, and from every ledge poured a miniature cataract.

Noble simplicity is the key-note to the scenery of the Yosemite, and this is enhanced by the park-like appearance of the floor of the valley. The stems of the fine trees are in harmony with the perpendicular lines, and their foliage adds the necessary contrast to the gray rock masses. In order to preserve these for-

est-trees, the underbrush, which is liable to make a conflagration in a dry season, should be removed generally, and the view of the great features be left unimpeded. The minor cañons and the trails are, of course, left as much as possible to the riot of vegetation. The State Commission, which labors under the disadvantages of getting its supplies from a Legislature that does not appreciate the value of the Yosemite to California, has developed the trails judiciously, and established a model trail service. The Yosemite, it need not be said, is a great attraction to tourists from all parts of the world; it is the interest of the State, therefore, to increase their number by improving the

CYPRESS POINT.

facilities for reaching it, and by resolutely preserving all the surrounding region from ravage.

This is as true of the Mariposa big tree region as of the valley. Indeed, more care is needed for the

trees than for the great chasm, for man cannot permanently injure the distinctive features of the latter, while the destruction of the sequoias will be an irreparable loss to the State and to the world. The *Sequoia gigantea* differs in leaf, and size and shape of cone, from

NEAR SEAL ROCK.

the great *Sequoia semper virens* on the coast near Santa Cruz; neither can be spared. The Mariposa trees, scattered along on a mountain ridge 6500 feet above the sea, do not easily obtain their victory, for they are a part of a magnificent forest of other growths, among which the noble sugar-pine is conspicuous for its enormous size and graceful vigor. The sequoias dominate among splendid rivals only by a magnitude that has no comparison elsewhere in the world. I think no one can anticipate the effect that one of these monarchs will have upon him. He has read that a coach and six can drive through one of the trees that is

standing; that another is thirty-three feet in diameter, and that its vast stem, 350 feet high, is crowned with a mass of foliage that seems to brush against the sky. He might be prepared for a tower 100 feet in circumference, and even 400 feet high, standing upon a level plain; but this living growth is quite another affair. Each tree is an individual, and has a personal character. No man can stand in the presence of one of these giants without a new sense of the age of the world and the insignificant span of one human life; but he is also overpowered by a sense of some gigantic personality. It does not relieve him to think of this as the Methuselah of trees, or to call it by the name of some great poet or captain. The awe the tree inspires is of itself. As one lies and looks up at the enormous bulk, it seems not so much the bulk, so lightly is it carried, as the spirit of the tree—the elastic vigor, the patience, the endurance of storm and change, the confident might, and the soaring, almost contemptuous pride, that overwhelm the puny spectator. It is just because man can measure himself, his littleness, his brevity of existence, with this growth out of the earth, that he is more personally impressed by it than he might be by the mere variation in the contour of the globe which is called a mountain. The imagination makes a plausible effort to comprehend it, and is foiled. No; clearly it is not mere size that impresses one; it is the dignity, the character in the tree, the authority and power of antiquity. Side by side of these venerable forms are young sequoias, great trees themselves, that have only just begun their millennial career—trees that will, if spared, perpetuate to remote ages this race of giants,

LAGUNA, FROM THE SOUTH-EAST.

and in two to four thousand years from now take the place of their great-grandfathers, who are sinking under the weight of years, and one by one measuring their length on the earth.

The transition from the sublime to the exquisitely lovely in nature can nowhere else be made with more celerity than from the Sierras to the coast at Monterey; California abounds in such contrasts and surprises. After the great stirring of the emotions by the Yosemite and the Mariposa, the Hotel del Monte Park and vicinity offer repose, and make an appeal to the sense of beauty and refinement. Yet even here something unique is again encountered. I do not refer to the extraordinary beauty of the giant live-oaks and the landscape-gardening about the hotel, which have made Monterey famous the world over, but to the sea-beach drive of sixteen miles, which can scarcely be rivalled elsewhere either for marine loveliness or variety of coast scenery. It has points like the ocean drive at Newport, but is altogether on a grander scale, and shows a more poetic union of shore and sea; besides, it offers the curious and fascinating spectacles of the rocks inhabited by the sea-lions, and the Cypress Point. These huge, uncouth creatures can be seen elsewhere, but probably nowhere else on this coast are they massed in greater numbers. The trees of Cypress Point are unique, this species of cypress having been found nowhere else. The long, never-ceasing swell of the Pacific incessantly flows up the many crescent sand beaches, casting up shells of brilliant hues, sea-weed, and kelp, which seems instinct with animal life, and flotsam from the far-off islands. But the rocks that lie off the shore, and the jagged

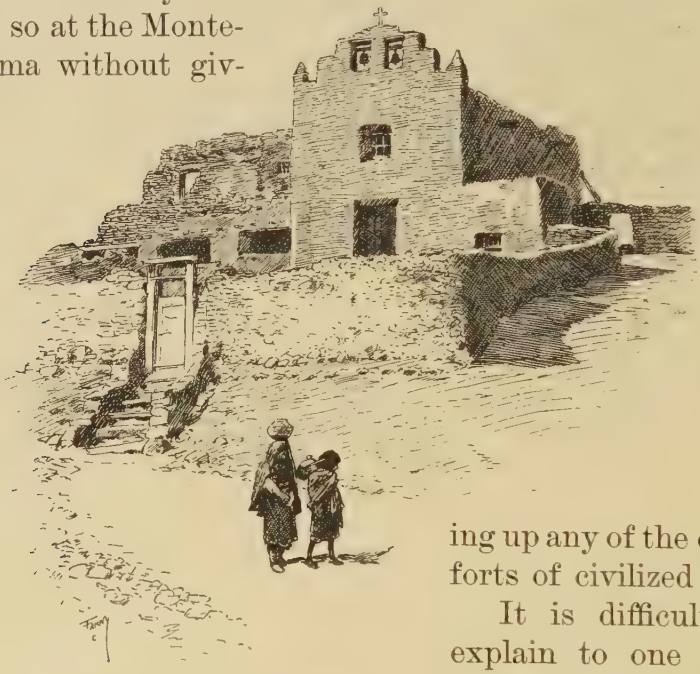
points that project in fanciful forms, break the even great swell, and send the waters, churned into spray and foam, into the air with a thousand hues in the sun. The shock of these sharp collisions mingles with the heavy ocean boom. Cypress Point is one of the most conspicuous of these projections, and its strange trees creep out upon the ragged ledges almost to the water's edge. These cypresses are quite as instinct with individual life and quite as fantastic as any that Doré drew for his "Inferno." They are as gnarled and twisted as olive-trees two centuries old, but their attitudes seem not only to show struggle with the elements, but agony in that struggle. The agony may be that of torture in the tempest, or of some fabled creatures fleeing and pursued, stretching out their long arms in terror, and fixed in that writhing fear. They are creatures of the sea quite as much as of the land, and they give to this lovely coast a strange charm and fascination.

CHAPTER XVI.

FASCINATIONS OF THE DESERT.—THE LAGUNA PUEBLO.

The traveller to California by the Santa Fé route comes into the arid regions gradually, and finds each day a variety of objects of interest that upsets his conception of a monotonous desert land. If he chooses to break the continental journey midway, he can turn aside at Las Vegas to the Hot Springs. Here, at the head of a picturesque valley, is the Montezuma Hotel, a luxurious and handsome house, 6767 feet above sea-level, a great surprise in the midst of the broken and somewhat savage New Mexican scenery. The low hills covered with pines and piñons, the romantic glens, and the wide views from the elevations about the hotel, make it an attractive place; and a great deal has been done, in the erection of bath-houses, ornamental gardening, and the grading of roads and walks, to make it a comfortable place. The latitude and the dryness of the atmosphere insure for the traveller from the North in our winter an agreeable reception, and the elevation makes the spot in the summer a desirable resort from Southern heat. It is a sanitarium as well as a pleasure resort. The Hot Springs have much the same character as the Töplitz waters in Bohemia, and the saturated earth—the *Mütterlager*—furnishes the curative "mud baths" which are enjoyed at Marienbad and Carlsbad. The union of the climate,

which is so favorable in diseases of the respiratory organs, with the waters, which do so much for rheumatic sufferers, gives a distinction to Las Vegas Hot Springs. This New Mexican air—there is none purer on the globe—is an enemy to hay-fever and malarial diseases. It was a wise enterprise to provide that those who wish to try its efficacy can do so at the Montezuma without giving up any of the comforts of civilized life.



CHURCH AT LAGUNA.

It is difficult to explain to one who has not seen it, or will not put himself in the leisurely frame of mind to enjoy it, the charms of the desert of the high plateaus of New Mexico and Arizona. Its arid character is not so impressive as its ancientness; and the part which interests us is not only the procession of the long geologic eras, visible in the extinct volcanoes, the

barrancas, the painted buttes, the petrified forests, but as well in the evidences of civilizations gone by, or the remains of them surviving in our day—the cliff dwellings, the ruins of cities that were thriving when Coronado sent his lieutenants through the region three centuries ago, and the present residences of the Pueblo Indians, either villages perched upon an almost inaccessible rock like Acamo, or clusters of adobe dwellings like Isleta and Laguna. The Pueblo Indians, of whom the Zuñis are a tribe, have been dwellers in villages and cultivators of the soil and of the arts of peace immemorially, a gentle, amiable race. It is indeed such a race as one would expect to find in the land of the sun and the cactus. Their manners and their arts attest their antiquity and a long refinement in fixed dwellings and occupations. The whole region is a most interesting field for the antiquarian.

We stopped one day at Laguna, which is on the Santa Fé line west of Isleta, another Indian pueblo at the Atlantic and Pacific junction, where the road crosses the Rio Grande del Norte west of Albuquerque. Near Laguna a little stream called the Rio Puerco flows southward and joins the Rio Grande. There is verdure along these streams, and gardens and fruit orchards repay the rude irrigation. In spite of these watercourses the aspect of the landscape is wild and desert-like—low barren hills and ragged ledges, wide sweeps of sand and dry gray bushes, with mountains and long lines of horizontal ledges in the distance. Laguna is built upon a rounded elevation of rock. Its appearance is exactly that of a Syrian village, the same cluster of little, square, flat-roofed houses in terraces, the same brown color, and under the same pale

blue sky. And the resemblance was completed by the figures of the women on the roofs, or moving down the slope, erect and supple, carrying on the head a water jar, and holding together by one hand the mantle worn like a Spanish *rebozo*. The village is irregularly built, without much regard to streets or alleys, and it has no special side of entrance or approach. Every side presents a blank wall of adobe, and the entrance seems quite by chance. Yet the way we went over, the smooth slope was worn here and there in channels three or four inches deep, as if by the passing feet of many generations. The only semblance of architectural regularity is in the plaza, not perfectly square, upon which some of the houses look, and where the annual dances take place. The houses have the effect of being built in terraces rising one above the other, but it is hard to say exactly what a house is—whether it is anything more than one room. You can reach some of the houses only by aid of a ladder. You enter others from the street. If you will go farther you must climb a ladder which brings you to the roof that is used as the sitting-room or door-yard of the next room. From this room you may still ascend to others, or you may pass through low and small door-ways to other apartments. It is all haphazard, but exceedingly picturesque. You may find some of the family in every room, or they may be gathered, women and babies, on a roof which is protected by a parapet. At the time of our visit the men were all away at work in their fields. Notwithstanding the houses are only sun-dried bricks, and the village is without water or street commissioners, I was struck by the universal cleanliness. There was no ref-

TERRACED HOUSES, PUEBLO OF LAGUNA.

use in the corners or alleys, no odors, and many of the rooms were patterns of neatness. To be sure, an old woman here and there kept her hens in an adjoining apartment above her own, and there was the litter of children and of rather careless house-keeping. But, taken altogether, the town is an example for some

more civilized, whose inhabitants wash oftener and dress better than these Indians.

We were put on friendly terms with the whole settlement through three or four young maidens who had been at the Carlisle school, and spoke English very prettily. They were of the ages of fifteen and sixteen, and some of them had been five years away. They came back, so far as I could learn, gladly to their own people and to the old ways. They had resumed the Indian dress, which is much more becoming to them, as I think they know, than that which had been imposed upon them. I saw no books. They do not read any now, and they appear to be perfectly content with the idle drudgery of their semi-savage condition. In time they will marry in their tribe, and the school episode will be a thing of the past. But not altogether. The pretty Josephine, who was our best cicerone about the place, a girl of lovely eyes and modest mien, showed us with pride her own room, or "house," as she called it, neat as could be, simply furnished with an iron bedstead and snow-white cot, a mirror, chair, and table, and a trunk, and some "advertising" prints on the walls. She said that she was needed at home to cook for her aged mother, and her present ambition was to make money enough by the sale of pottery and curios to buy a cooking stove, so that she could cook more as the whites do. The house-work of the family had mainly fallen upon her; but it was not burdensome, I fancied, and she and the other girls of her age had leisure to go to the station on the arrival of every train, in hope of selling something to the passengers, and to sit on the rocks in the sun and dream as maidens do. I fancy it would be

better for Josephine and for all the rest if there were no station and no passing trains. The elder women were uniformly ugly, but not repulsive like the Mojaves; the place swarmed with children, and the babies, aged women, and pleasing young girls grouped most effectively on the roofs.

The whole community were very complaisant and friendly when we came to know them well, which we did in the course of an hour, and they enjoyed as much as we did the bargaining for pottery. They have for sale a great quantity of small pieces, fantastic in form and brilliantly colored—toys, in fact; but we found in their houses many beautiful jars of large size and excellent shape, decorated most effectively. The ordinary utensils for cooking and for cooling water are generally pretty in design and painted artistically. Like the ancient Peruvians, they make many vessels in the forms of beasts and birds. Some of the designs of the decoration are highly conventionalized, and others are just in the proper artistic line of the natural—a spray with a bird, or a sunflower on its stalk. The ware is all unglazed, exceedingly light and thin, and baked so hard that it has a metallic sound when struck. Some of the large jars are classic in shape, and recall in form and decoration the ancient Cypriote ware, but the colors are commonly brilliant and barbaric. The designs seem to be indigenous, and to betray little Spanish influence. The art displayed in this pottery is indeed wonderful, and, to my eye, much more effective and lastingly pleasing than much of our cultivated decoration. A couple of handsome jars that I bought of an old woman, she assured me she made and decorated herself; but I saw no ovens there,

nor any signs of manufacture, and suppose that most of the ware is made at Acoma.

It did not seem to be a very religious community, although the town has a Catholic church, and I understand that Protestant services are sometimes held in the place. The church is not much frequented, and the only evidence of devotion I encountered was in a woman who wore a large and handsome silver cross, made by the Navajos. When I asked its price, she clasped it to her bosom, with an upward look full of faith and of refusal to part with her religion at any price. The church, which is adobe, and at least two centuries old, is one of the most interesting I have seen anywhere. It is a simple parallelogram, 104 feet long and 21 feet broad, the gable having an opening in which the bells hang. The interior is exceedingly curious, and its decorations are worth reproduction. The floor is of earth, and many of the tribe who were distinguished and died long ago are said to repose under its smooth surface, with nothing to mark their place of sepulture. It has an open timber roof, the beams supported upon carved corbels. The ceiling is made of wooden sticks, about two inches in diameter and some four feet long, painted in alternated colors—red, blue, orange, and black—and so twisted or woven together as to produce the effect of plaited straw, a most novel and agreeable decoration. Over the entrance is a small gallery, the under roof of which is composed of sticks laid in straw pattern and colored. All around the wall runs a most striking dado, an odd, angular pattern, with conventionalized birds at intervals, painted in strong yet *fade* colors—red, yellow, black, and white. The north wall is without win-

GRAND CAÑON ON THE COLORADO—VIEW FROM POINT SUBLIME.

dows; all the light, when the door is closed, comes from two irregular windows, without glass, high up in the south wall. The chancel walls are covered with frescos, and there are several quaint paintings, some of them not very bad in color and drawing. The altar, which is supported at the sides by twisted wooden pillars, carved with a knife, is hung with ancient sheepskins brightly painted. Back of the altar are some archaic wooden images, colored; and over the altar, on the ceiling, are the stars of heaven, and the sun and the moon, each with a face in it. The interior was scrupulously clean and sweet and restful to one coming in from the glare of the sun on the desert. It was evidently little used, and the Indians who accompanied us seemed under no strong impression of its sanctity; but we liked to linger in it, it was so *bizarre*, so picturesque, and exhibited in its rude decoration so much taste. Two or three small birds flitting about seemed to enjoy the coolness and the subdued light, and were undisturbed by our presence.

These are children of the desert, kin in their condition and the influences that formed them to the sedentary tribes of upper Egypt and Arabia, who pitch their villages upon the rocky eminences, and depend for subsistence upon irrigation and scant pasturage. Their habits are those of the dwellers in an arid land which has little in common with the wilderness—the inhospitable northern wilderness of rain and frost and snow. Rain, to be sure, insures some sort of vegetation in the most forbidding and intractable country, but that does not save the harsh landscape from being unattractive. The high plateaus of New Mexico and Arizona have everything that the rainy wilderness

INTERIOR OF THE CHURCH AT LAGUNA.

lacks—sunshine, heaven's own air, immense breadth of horizon, color and infinite beauty of outline, and a warm soil with unlimited possibilities when moistened. All that these deserts need is water. A fatal want? No. That is simply saying that science can do for this region what it cannot do for the high wilderness of frost—by the transportation of water transform it

into gardens of bloom and fields of fruitfulness. The wilderness shall be made to feed the desert.

I confess that these deserts in the warm latitudes fascinate me. Perhaps it is because I perceive in them such a chance for the triumph of the skill of man, seeing how, here and there, his energy has pushed the desert out of his path across the continent. But I fear that I am not so practical. To many the desert in its stony sterility, its desolateness, its unbroken solitude, its fantastic savageness, is either appalling or repulsive. To them it is tiresome and monotonous. The vast plains of Kansas and Nebraska are monotonous even in the agricultural green of summer. Not so to me the desert. It is as changeable in its lights and colors as the ocean. It is even in its general features of sameness never long the same. If you traverse it on foot or on horseback, there is ever some minor novelty. And on the swift train, if you draw down the curtain against the glare, or turn to your book, you are sure to miss something of interest — a deep cañon rift in the plain, a turn that gives a wide view glowing in a hundred hues in the sun, a savage gorge with beetling rocks, a solitary butte or red truncated pyramid thrust up into the blue sky, a horizontal ledge cutting the horizon line as straight as a ruler for miles, a pointed cliff uplifted sheer from the plain and laid in regular courses of Cyclopean masonry, the battlements of a fort, a terraced castle with towers and esplanade, a great trough of a valley, gray and parched, enclosed by far purple mountains. And then the unlimited freedom of it, its infinite expansion, its air like wine to the senses, the floods of sunshine, the waves of color, the translucent atmosphere that aids the im-

agination to create in the distance all architectural splendors and realms of peace. It is all like a mirage and a dream. We pass swiftly, and make a moving panorama of beauty in hues, of strangeness in forms, of sublimity in extent, of overawing and savage antiquity. I would miss none of it. And when we pass to the accustomed again, to the fields of verdure and the forests and the hills of green, and are limited in view and shut in by that which we love, after all, better than the arid land, I have a great longing to see again the desert, to be a part of its vastness, and to feel once more the freedom and inspiration of its illimitable horizons.

CHAPTER XVII.

THE HEART OF THE DESERT.

THERE is an arid region lying in Northern Arizona and Southern Utah which has been called the District of the Grand Cañon of the Colorado. The area, roughly estimated, contains from 13,000 to 16,000 square miles—about the size of the State of Maryland. This region, fully described by the explorers and studied by the geologists in the United States service, but little known to even the travelling public, is probably the most interesting territory of its size on the globe. At least it is unique. In attempting to convey an idea of it the writer can be assisted by no comparison, nor can he appeal in the minds of his readers to any experience of scenery that can apply here. The so-called Grand Cañon differs not in degree from all other scenes; it differs in kind.

The Colorado River flows southward through Utah, and crosses the Arizona line below the junction with the San Juan. It continues southward, flowing deep in what is called the Marble Cañon, till it is joined by the Little Colorado, coming up from the south-east; it then turns westward in a devious line until it drops straight south, and forms the western boundary of Arizona. The centre of the district mentioned is the westwardly flowing part of the Colorado. South of the river is the Colorado Plateau, at a general eleva-

tion of about 7000 feet. North of it the land is higher, and ascends in a series of plateaus, and then terraces, a succession of cliffs like a great stair-way, rising to the high plateaus of Utah. The plateaus, adjoining the river on the north and well marked by north and south dividing lines, or faults, are, naming them from east to west, the Paria, the Kaibab, the Kanab, the Uinkaret, and the Sheavwitz, terminating in a great wall on the west, the Great Wash fault, where the surface of the country drops at once from a general elevation of 6000 feet to from 1300 to 3000 feet above the sea-level—into a desolate and formidable desert.

If the Grand Cañon itself did not dwarf everything else, the scenery of these plateaus would be superlative in interest. It is not all desert, nor are the gorges, cañons, cliffs, and terraces, which gradually prepare the mind for the comprehension of the Grand Cañon, the only wonders of this land of enchantment. These are contrasted with the sylvan scenery of the Kaibab Plateau, its giant forests and parks, and broad meadows decked in the summer with wild flowers in dense masses of scarlet, white, purple, and yellow. The Vermilion Cliffs, the Pink Cliffs, the White Cliffs, surpass in fantastic form and brilliant color anything that the imagination conceives possible in nature, and there are dreamy landscapes quite beyond the most exquisite fancies of Claude and of Turner. The region is full of wonders, of beauties, and sublimities that Shelley's imaginings do not match in the "Prometheus Unbound," and when it becomes accessible to the tourist it will offer an endless field for the delight of those whose minds can rise to the heights of the sublime and the beautiful. In all imaginative writing

GRAND CAÑON OF THE COLORADO—VIEW OPPOSITE POINT SUBLIME.

or painting the material used is that of human experience, otherwise it could not be understood; even heaven must be described in the terms of an earthly paradise. Human experience has no prototype of this region, and the imagination has never conceived of its forms and colors. It is impossible to convey an adequate idea of it by pen or pencil or brush. The reader who is familiar with the glowing descriptions in the official reports of Major J. W. Powell, Captain C. E. Dutton, Lieutenant Ives, and others, will not save himself from a shock of surprise when the reality is before him. This paper deals only with a single view in this marvellous region.

The point where we struck the Grand Cañon, approaching it from the south, is opposite the promontory in the Kaibab Plateau named Point Sublime by Major Powell, just north of the 36th parallel, and 112° 15′ west longitude. This is only a few miles west of the junction with the Little Colorado. About three or four miles west of this junction the river enters the east slope of the east Kaibab monocline, and here the Grand Canon begins. Rapidly the chasm deepens to about 6000 feet, or rather it penetrates a higher country, the slope of the river remaining about the same. Through this lofty plateau—an elevation of 7000 to 9000 feet—the chasm extends for sixty miles, gradually changing its course to the north-west, and entering the Kanab Plateau. The Kaibab division of the Grand Cañon is by far the sublimest of all, being 1000 feet deeper than any other. It is not grander only on account of its greater depth, but it is broader and more diversified with magnificent architectural features.

The Kanab division, only less magnificent than the Kaibab, receives the Kanab Cañon from the north and the Cataract Cañon from the south, and ends at the Toroweap Valley.

The section of the Grand Cañon seen by those who take the route from Peach Springs is between 113° and 114° west longitude, and, though wonderful, presents few of the great features of either the Kaibab or the Kanab divisions. The Grand Cañon ends, west longitude 114°, at the Great Wash, west of the Hurricane Ledge or Fault. Its whole length from Little Colorado to the Great Wash, measured by the meanderings of the surface of the river, is 220 miles; by a median line between the crests of the summits of the walls with two-mile cords, about 195 miles; the distance in a straight line is 125 miles.

In our journey to the Grand Cañon we left the Santa Fé line at Flagstaff, a new town with a lively lumber industry, in the midst of a spruce-pine forest which occupies the broken country through which the road passes for over fifty miles. The forest is open, the trees of moderate size are too thickly set with low-growing limbs to make clean lumber, and the foliage furnishes the minimum of shade; but the change to these woods is a welcome one from the treeless reaches of the desert on either side. The cañon is also reached from Williams, the next station west, the distance being a little shorter, and the point on the cañon visited being usually a little farther west. But the Flagstaff route is for many reasons usually preferred. Flagstaff lies just south-east of the San Francisco Mountain, and on the great Colorado Plateau, which has a pretty uniform elevation of about 7000

feet above the sea. The whole region is full of interest. Some of the most remarkable cliff dwellings are within ten miles of Flagstaff, on the Walnut Creek

TOURISTS IN THE COLORADO CAÑON.

Cañon. At Holbrook, 100 miles east, the traveller finds a road some forty miles long, that leads to the great petrified forest, or Chalcedony Park. Still farther east are the villages of the Pueblo Indians, near the line, while to the northward is the great reservation of the Navajos, a nomadic tribe celebrated for its fine blankets and pretty work in silver—a tribe

that preserves much of its manly independence by shunning the charity of the United States. No Indians have come into intimate or dependent relations with the whites without being deteriorated.

Flagstaff is the best present point of departure, because it has a small hotel, good supply stores, and a large livery-stable, made necessary by the business of the place and the objects of interest in the neighborhood, and because one reaches from there by the easiest road the finest scenery incomparably on the Colorado. The distance is seventy-six miles through a practically uninhabited country, much of it a desert, and with water very infrequent. No work has been done on the road; it is made simply by driving over it. There are a few miles here and there of fair wheeling, but a good deal of it is intolerably dusty or exceedingly stony, and progress is slow. In the daytime (it was the last of June) the heat is apt to be excessive; but this could be borne, the air is so absolutely dry and delicious, and breezes occasionally spring up, if it were not for the dust. It is, notwithstanding the novelty of the adventure and of the scenery by the way, a tiresome journey of two days. A day of rest is absolutely required at the cañon, so that five days must be allowed for the trip. This will cost the traveller, according to the size of the party made up, from forty to fifty dollars. But a much longer sojourn at the cañon is desirable.

Our party of seven was stowed in and on an old Concord coach drawn by six horses, and piled with camp equipage, bedding, and provisions. A four-horse team followed, loaded with other supplies and cooking utensils. The road lies on the east side of the San

Francisco Mountain. Returning, we passed around its west side, gaining thus a complete view of this shapely peak. The compact range is a group of extinct volcanoes, the craters of which are distinctly visible. The cup-like summit of the highest is 13,000 feet above the sea, and snow always lies on the north escarpment. Rising about 6000 feet above the point of view of the great plateau, it is from all sides a noble object, the dark rock, snow-sprinkled, rising out of the dense growth of pine and cedar. We drove at first through open pine forests, through park-like intervals, over the foot-hills of the mountain, through growths of scrub cedar, and out into the ever-varying rolling country to widely-extended prospects. Two considerable hills on our right attracted us by their unique beauty. Upon the summit and side of each was a red glow exactly like the tint of sunset. We thought surely that it was the effect of reflected light, but the sky was cloudless and the color remained constant. The color came from the soil. The first was called Sunset Mountain. One of our party named the other, and the more beautiful, Peachblow Mountain, a poetic and perfectly descriptive name.

We lunched at noon beside a swift, clouded, cold stream of snow-water from the San Francisco, along which grew a few gnarled cedars and some brilliant wild flowers. The scene was more than picturesque; in the clear hot air of the desert the distant landscape made a hundred pictures of beauty. Behind us the dark form of San Francisco rose up 6000 feet to its black crater and fields of spotless snow. Away off to the north-east, beyond the brown and gray pastures, across a far line distinct in dull color, lay the Painted

Desert, like a mirage, like a really painted landscape, glowing in red and orange and pink, an immense city rather than a landscape, with towers and terraces and façades, melting into indistinctness as in a rosy mist, spectral but constant, weltering in a tropic glow and heat, walls and columns and shafts, the wreck of an Oriental capital on a wide violet plain, suffused with brilliant color softened into exquisite shades. All over this region nature has such surprises, that laugh at our inadequate conception of her resources.

Our camp for the night was at the next place where water could be obtained, a station of the Arizona Cattle Company. Abundant water is piped down to it from mountain springs. The log-house and stable of the cow-boys were unoccupied, and we pitched our tent on a knoll by the corral. The night was absolutely dry, and sparkling with the starlight. A part of the company spread their blankets on the ground under the sky. It is apt to be cold in this region towards morning, but lodging in the open air is no hardship in this delicious climate. The next day the way part of the distance, with only a road marked by wagon wheels, was through extensive and barren-looking cattle ranges, through pretty vales of grass surrounded by stunted cedars, and over stormy ridges and plains of sand and small bowlders. The water having failed at Red Horse, the only place where it is usually found in the day's march, our horses went without, and we had resource to our canteens. The whole country is essentially arid, but snow falls in the winter-time, and its melting, with occasional showers in the summer, create what are called surface wells, made by drainage. Many of them go dry by June.

There had been no rain in the region since the last of March, but clouds were gathering daily, and showers are always expected in July. The phenomenon of rain on this baked surface, in this hot air, and with this immense horizon, is very interesting. Showers in this tentative time are local. In our journey we saw showers far off, we experienced a dash for ten minutes, but it was local, covering not more than a mile or two square. We have in sight a vast canopy of blue sky, of forming and dispersing clouds. It is difficult for them to drop their moisture in the rising columns of hot air. The result at times was a very curious spectacle — rain in the sky that did not reach the earth. Perhaps some cold current high above us would condense the moisture, which would begin to fall in long trailing sweeps, blown like fine folds of muslin, or like sheets of dissolving sugar, and then the hot air of the earth would dissipate it, and the showers would be absorbed in the upper regions. The heat was sometimes intense, but at intervals a refreshing wind would blow, the air being as fickle as the rain; and now and then we would see a slender column of dust, a thousand or two feet high, marching across the desert, apparently not more than two feet in diameter, and wavering like the threads of moisture that tried in vain to reach the earth as rain. Of life there was not much to be seen in our desert route. In the first day we encountered no habitation except the ranch-house mentioned, and saw no human being; and the second day none except the solitary occupant of the dried well at Red Horse, and two or three Indians on the hunt. A few squirrels were seen, and a rabbit now and then, and occasionally a bird. The general im-

pression was that of a deserted land. But antelope abound in the timber regions, and we saw several of these graceful creatures quite near us. Excellent antelope steaks, bought of the wandering Indian hunters, added something to our "canned" supplies. One day as we lunched, without water, on the cedar slope of a lovely grass interval, we saw coming towards us over the swells of the prairie a figure of a man on a horse. It rode to us straight as the crow flies. The Indian pony stopped not two feet from where our group sat, and the rider, who was an Oualapai chief, clad in sacking, with the print of the brand of flour or salt on his back, dismounted with his Winchester rifle, and stood silently looking at us without a word of salutation. He stood there, impassive, until we offered him something to eat. Having eaten all we gave him, he opened his mouth and said, "Smoke 'em?" Having procured from the other wagon a pipe of tobacco and a pull at the driver's canteen, he returned to us all smiles. His only baggage was the skull of an antelope, with the horns, hung at his saddle. Into this he put the bread and meat which we gave him, mounted the wretched pony, and without a word rode straight away. At a little distance he halted, dismounted, and motioned towards the edge of the timber, where he had spied an antelope. But the game eluded him, and he mounted again and rode off across the desert—a strange figure. His tribe lives in the cañon some fifty miles west, and was at present encamped, for the purpose of hunting, in the pine woods not far from the point we were aiming at.

CHAPTER XVIII.

ON THE BRINK OF THE GRAND CAÑON.—THE UNIQUE MARVEL OF NATURE.

The way seemed long. With the heat and dust and slow progress, it was exceedingly wearisome. Our modern nerves are not attuned to the slow crawling of a prairie-wagon. There had been growing for some time in the coach a feeling that the journey did not pay; that, in fact, no mere scenery could compensate for the fatigue of the trip. The imagination did not rise to it. "It will have to be a very big cañon," said the duchess.

Late in the afternoon we entered an open pine forest, passed through a meadow where the Indians had set their camp by a shallow pond, and drove along a ridge, in the cool shades, for three or four miles. Suddenly, on the edge of a descent, we who were on the box saw through the tree-tops a vision that stopped the pulse for a second, and filled us with excitement. It was only a glimpse, far off and apparently lifted up—red towers, purple cliffs, wide-spread apart, hints of color and splendor; on the right distance, mansions, gold and white and carmine (so the light made them), architectural habitations in the sky it must be, and suggestions of others far off in the middle distance—a substantial aerial city, or the ruins of one, such as the prophet saw in a vision. It was only

a glimpse. Our hearts were in our mouths. We had a vague impression of something wonderful, fearful —some incomparable splendor that was not earthly. Were we drawing near the "City?" and should we have yet a more perfect view thereof? Was it Jerusalem or some Hindoo temples there in the sky? "It was builded of pearls and precious stones, also the streets were paved with gold; so that by reason of the natural glory of the city, and the reflection of the sunbeams upon it, Christian with desire fell sick." It was a momentary vision of a vast amphitheatre of splendor, mostly hidden by the trees and the edge of the plateau.

We descended into a hollow. There was the well, a log-cabin, a tent or two under the pine-trees. We dismounted with impatient haste. The sun was low in the horizon, and had long withdrawn from this grassy dell. Tired as we were, we could not wait. It was only to ascend the little steep, stony slope—300 yards—and we should see! Our party were straggling up the hill: two or three had reached the edge. I looked up. The duchess threw up her arms and screamed. We were not fifteen paces behind, but we saw nothing. We took the few steps, and the whole magnificence broke upon us. No one could be prepared for it. The scene is one to strike dumb with awe, or to unstring the nerves; one might stand in silent astonishment, another would burst into tears.

There are some experiences that cannot be repeated—one's first view of Rome, one's first view of Jerusalem. But these emotions are produced by association, by the sudden standing face to face with the scenes most wrought into our whole life and educa-

GRAND CAÑON OF THE COLORADO—VIEW FROM THE HANSE TRAIL

tion by tradition and religion. This was without association, as it was without parallel. It was a shock so novel that the mind, dazed, quite failed to comprehend it. All that we could grasp was a vast confusion of amphitheatres and strange architectural forms resplendent with color. The vastness of the view amazed us quite as much as its transcendent beauty.

We had expected a cañon—two lines of perpendicular walls 6000 feet high, with the ribbon of a river at the bottom; but the reader may dismiss all his notions of a cañon, indeed of any sort of mountain or gorge scenery with which he is familiar. We had come into a new world. What we saw was not a cañon, or a chasm, or a gorge, but a vast area which is a break in the plateau. From where we stood it was twelve miles across to the opposite walls — a level line of mesa on the Utah side. We looked up and down for twenty to thirty miles. This great space is filled with gigantic architectural constructions, with amphitheatres, gorges, precipices, walls of masonry, fortresses terraced up to the level of the eye, temples mountain size, all brilliant with horizontal lines of color—streaks of solid hues a few feet in width, streaks a thousand feet in width—yellows, mingled white and gray, orange, dull red, brown, blue, carmine, green, all blending in the sunlight into one transcendent suffusion of splendor. Afar off we saw the river in two places, a mere thread, as motionless and smooth as a strip of mirror, only we knew it was a turbid, boiling torrent, 6000 feet below us. Directly opposite the overhanging ledge on which we stood was a mountain, the sloping base of which was ashy gray and bluish; it rose in a series of terraces to a thousand-feet wall of dark red

sandstone, receding upward, with ranges of columns and many fantastic sculptures, to a finial row of gigantic opera-glasses 6000 feet above the river. The great San Francisco Mountain, with its snowy crater, which we had passed on the way, might have been set down in the place of this one, and it would have been only one in a multitude of such forms that met the eye whichever way we looked. Indeed, all the vast mountains in this region might be hidden in this cañon.

Wandering a little away from the group and out of sight, and turning suddenly to the scene from another point of view, I experienced for a moment an indescribable terror of nature, a confusion of mind, a fear to be alone in such a presence. With all this grotesqueness and majesty of form and radiance of color, creation seemed in a whirl. With our education in scenery of a totally different kind, I suppose it would need long acquaintance with this to familiarize one with it to the extent of perfect mental comprehension.

The vast abyss has an atmosphere of its own, one always changing and producing new effects, an atmosphere and shadows and tones of its own—golden, rosy, gray, brilliant, and sombre, and playing a thousand fantastic tricks to the vision. The rich and wonderful color effects, says Captain Dutton, "are due to the inherent colors of the rocks, modified by the atmosphere. Like any other great series of strata in the plateau province, the carboniferous has its own range of colors, which might serve to distinguish it, even if we had no other criterion. The summit strata are pale gray, with a faint yellowish cast. Beneath them the cross-bedded sandstone appears, showing a mottled

surface of pale pinkish hue. Underneath this member are nearly 1000 feet of the lower Aubrey sandstones, displaying an intensely brilliant red, which is somewhat marked by the talus shot down from the gray cherty limestone at the summit. Beneath the lower Aubrey is the face of the Red Wall limestone, from 2000 to 3000 feet high. It has a strong red tone, but a very peculiar one. Most of the red strata of the West have the brownish or vermilion tones, but these are rather purplish red, as if the pigment had been treated to a dash of blue. It is not quite certain that this may not arise in part from the intervention of the blue haze, and probably it is rendered more conspicuous by this cause; but, on the whole, the purplish cast seems to be inherent. This is the dominant color of the cañon, for the expanse of the rock surface displayed is more than half in the Red Wall group."

I was continually likening this to a vast city rather than a landscape, but it was a city of no man's creation nor of any man's conception. In the visions which inspired or crazy painters have had of the New Jerusalem, of Babylon the Great, of a heaven in the atmosphere, with endless perspective of towers and steeps that hang in the twilight sky, the imagination has tried to reach this reality. But here are effects beyond the artist, forms the architect has not hinted at; and yet everything reminds us of man's work. And the explorers have tried by the use of Oriental nomenclature to bring it within our comprehension, the East being the land of the imagination. There is the Hindoo Amphitheatre, the Bright Angel Amphitheatre, the Ottoman Amphitheatre, Shiva's Tem-

ple, Vishnu's Temple, Vulcan's Throne. And here, indeed, is the idea of the pagoda architecture, of the terrace architecture, of the bizarre constructions which rise with projecting buttresses, rows of pillars, recesses, battlements, esplanades, and low walls, hanging gardens, and truncated pinnacles. It is a city, but a city of the imagination. In many pages I could tell what I saw in one day's lounging for a mile or so along the edge of the precipice. The view changed at every step, and was never half an hour the same in one place. Nor did it need much fancy to create illusions or pictures of unearthly beauty. There was a castle, terraced up with columns, plain enough, and below it a parade-ground; at any moment the knights in armor and with banners might emerge from the red gates and deploy there, while the ladies looked down from the balconies. But there were many castles and fortresses and barracks and noble mansions. And the rich sculpture in this brilliant color! In time I began to see queer details: a Richardson house, with low portals and round arches, surmounted by a Nuremberg gable; perfect panels, 600 feet high, for the setting of pictures; a train of cars partly derailed at the door of a long, low warehouse, with a garden in front of it. There was no end to such devices.

It was long before I could comprehend the vastness of the view, see the enormous chasms and rents and seams, and the many architectural ranges separated by great gulfs, between me and the wall of the mesa twelve miles distant. Away to the north-east was the blue Navajo Mountain, the lone peak in the horizon; but on the southern side of it lay a desert level, which in the afternoon light took on the exact

appearance of a blue lake; its edge this side was a wall thousands of feet high, many miles in length, and straightly horizontal; over this seemed to fall water. I could see the foam of it at the foot of the cliff; and below that was a lake of shimmering silver, in which the giant precipice and the fall and their color were mirrored. Of course there was no silver lake, and the reflection that simulated it was only the sun on the lower part of the immense wall.

Some one said that all that was needed to perfect this scene was a Niagara Falls. I thought what figure a fall 150 feet high and 3000 long would make in this arena. It would need a spy-glass to discover it. An adequate Niagara here should be at least three miles in breadth, and fall 2000 feet over one of these walls. And the Yosemite—ah! the lovely Yosemite! Dumped down into this wilderness of gorges and mountains, it would take a guide who knew of its existence a long time to find it.

The process of creation is here laid bare through the geologic periods. The strata of rock, deposited or upheaved, preserve their horizontal and parallel courses. If we imagine a river flowing on a plain, it would wear for itself a deeper and deeper channel. The walls of this channel would recede irregularly by weathering and by the coming in of other streams. The channel would go on deepening, and the outer walls would again recede. If the rocks were of different material and degrees of hardness, the forms would be carved in the fantastic and architectural manner we find them here. The Colorado flows through the tortuous inner chasm, and where we see it, it is 6000 feet below the surface where we stand,

and below the towers of the terraced forms nearer it. The splendid views of the cañon at this point given in Captain Dutton's report are from Point Sublime, on the north side. There seems to have been no way of reaching the river from that point. From the south side the descent, though wearisome, is feasible. It reverses mountaineering to descend 6000 feet for a view, and there is a certain pleasure in standing on a mountain summit without the trouble of climbing it. Hance, the guide, who has charge of the well, has made a path to the bottom. The route is seven miles long. Half-way down he has a house by a spring. At the bottom, somewhere in those depths, is a sort of farm, grass capable of sustaining horses and cattle, and ground where fruit-trees can grow. Horses are actually living there, and parties descend there with tents, and camp for days at a time. It is a world of its own. Some of the photographic views presented here, all inadequate, are taken from points on Hance's trail. But no camera or pen can convey an adequate conception of what Captain Dutton happily calls a great innovation in the modern ideas of scenery. To the eye educated to any other, it may be shocking, grotesque, incomprehensible; but "those who have long and carefully studied the Grand Cañon of the Colorado do not hesitate for a moment to pronounce it by far the most sublime of all earthly spectacles."

I have space only to refer to the geologic history in Captain Dutton's report of 1882, of which there should be a popular edition. The waters of the Atlantic once overflowed this region, and were separated from the Pacific, if at all, only by a ridge. The story is of long eras of deposits, of removal, of upheaval,

and of volcanic action. It is estimated that in one period the thickness of strata removed and transported away was 10,000 feet. Long after the Colorado began its work of corrosion there was a mighty upheaval. The reader will find the story of the making of the Grand Cañon more fascinating than any romance.

Without knowing this story the impression that one has in looking on this scene is that of immense antiquity, hardly anywhere else on earth so overwhelming as here. It has been here in all its lonely grandeur and transcendent beauty, exactly as it is, for what to us is an eternity, unknown, unseen by human eye. To the recent Indian, who roved along its brink or descended to its recesses, it was not strange, because he had known no other than the plateau scenery. It is only within a quarter of a century that the Grand Cañon has been known to the civilized world. It is scarcely known now. It is a world largely unexplored. Those who best know it are most sensitive to its awe and splendor. It is never twice the same, for, as I said, it has an atmosphere of its own. I was told by Hance that he once saw a thunder-storm in it. He described the chaos of clouds in the pit, the roar of the tempest, the reverberations of thunder, the inconceivable splendor of the rainbows mingled with the colors of the towers and terraces. It was as if the world were breaking up. He fled away to his hut in terror.

The day is near when this scenery must be made accessible. A railway can easily be built from Flagstaff. The projected road from Utah, crossing the Colorado at Lee's Ferry, would come within twenty

miles of the Grand Cañon, and a branch to it could be built. The region is arid, and in the "sight-seeing" part of the year the few surface wells and springs are likely to go dry. The greatest difficulty would be in procuring water for railway service or for such houses of entertainment as are necessary. It could, no doubt, be piped from the San Francisco Mountain. At any rate, ingenuity will overcome the difficulties, and travellers from the wide world will flock thither, for there is revealed the long-kept secret, the unique achievement of nature.

APPENDIX.

A CLIMATE FOR INVALIDS.

The following notes on the climate of Southern California, written by Dr. H. A. Johnson, of Chicago, at the solicitation of the writer of this volume and for his information, I print with his permission, because the testimony of a physician who has made a special study of climatology in Europe and America, and is a recognized authority, belongs of right to the public:

The choice of a climate for invalids or semi-invalids involves the consideration of: First, the invalid, his physical condition (that is, disease), his peculiarities (mental and emotional), his social habits, and his natural and artificial needs. Second, the elements of climate, such as temperature, moisture, direction and force of winds, the averages of the elements, the extremes of variation, and the rapidity of change.

The climates of the western and south-western portions of the United States are well suited to a variety of morbid conditions, especially those pertaining to the pulmonary organs and the nervous system. Very few localities, however, are equally well adapted to diseases of innervation of circulation and respiration. For the first and second, as a rule, high altitudes are not advisable; for the third, altitudes of from two thousand to six thousand feet are not only admissible but by many thought to be desirable. It seems, however, probable that it is to the dryness of the air and the general antagonisms to vegetable growths, rather than to altitude alone, that the benefits derived in these regions by persons suffering from consumption and kindred diseases should be credited.

Proximity to large bodies of water, river valleys, and damp plateaus are undesirable as places of residence for invalids with lung troubles. There are exceptions to this rule. Localities near the sea with a climate

subject to slight variations in temperature, a dry atmosphere, little rainfall, much sunshine, not so cold in winter as to prevent much out-door life and not so hot in summer as to make out-door exercise exhausting, are well adapted not only to troubles of the nervous and circulatory systems, but also to those of the respiratory organs.

Such a climate is found in the extreme southern portions of California. At San Diego the rainfall is much less, the air is drier, and the number of sunshiny days very much larger than on our Atlantic seaboard, or in Central and Northern California. The winters are not cold; flowers bloom in the open air all the year round; the summers are not hot. The mountains and sea combine to give to this region a climate with few sudden changes, and with a comfortable range of all essential elements.

A residence during a part of the winter of 1889–90 at Coronado Beach, and a somewhat careful study of the comparative climatology of the southwestern portions of the United States, leads me to think that we have few localities where the comforts of life can be secured, and which at the same time are so well adapted to the needs of a variety of invalids, as San Diego and its surroundings. In saying this I do not wish to be understood as preferring it to all others for some one condition or disease, but only that for weak hearts, disabled lungs, and worn-out nerves it seems to me to be unsurpassed.

Chicago, *July* 12, 1890.

THE COMING OF WINTER IN SOUTHERN CALIFORNIA.

From Mr. Theodore S. Van Dyke's altogether admirable book on *Southern California* I have permission to quote the following exquisite description of the floral procession from December to March, when the Land of the Sun is awakened by the first winter rain:

Sometimes this season commences with a fair rain in November, after a light shower or two in October, but some of the very best seasons begin about the time that all begin to lose hope. November adds its full tribute to the stream of sunshine that for months has poured along the land; and, perhaps, December closes the long file of cloudless days with banners of blue and gold. The plains and slopes lie bare and brown; the low hills that break away from them are yellow with dead foxtail or wild oats, gray with mustard-stalks, or ashy green with chemisal or sage. Even the chaparral, that robes the higher hills in living green, has a tired air, and the

long timber-line that marks the cañon winding up the mountain-slopes is decidedly paler. The sea-breeze has fallen off to a faint breath of air; the land lies silent and dreamy with golden haze; the air grows drier, the sun hotter, and the shade cooler; the smoke of brush-fires hangs at times along the sky; the water has risen in the springs and sloughs as if to meet the coming rain, but it has never looked less like rain than it now does.

Suddenly a new wind arises from the vast watery plains upon the south-west; long, fleecy streams of cloud reach out along the sky; the distant mountain-tops seem swimming in a film of haze, and the great California weather prophet—a creature upon whom the storms of adverse experience have beaten for years without making even a weather crack in the smooth cheek of his conceit—lavishes his wisdom as confidently as if he had never made a false prediction. After a large amount of fuss, and enough preliminary skirmishing over the sky for a dozen storms in any Eastern State, the clouds at last get ready, and a soft pattering is heard upon the roof—the sweetest music that ever cheers a Californian ear, and one which the author of "The Rain upon the Roof" should have heard before writing his poem.

When the sun again appears it is with a softer, milder beam than before. The land looks bright and refreshed, like a tired and dirty boy who has had a good bath and a nap, and already the lately bare plains and hill-sides show a greenish tinge. Fine little leaves of various kinds are springing from the ground, but nearly all are lost in a general profusion of dark green ones, of such shape and delicacy of texture that a careless eye might readily take them for ferns. This is the alfileria, the prevailing flower of the land. The rain may continue at intervals. Daily the land grows greener, while the shades of green, varied by the play of sunlight on the slopes and rolling hills, increase in number and intensity. Here the color is soft, and there bright; yonder it rolls in wavy alternations, and yonder it reaches in an unbroken shade where the plain sweeps broad and free. For many weeks green is the only color, though cold nights may perhaps tinge it with a rusty red. About the first of February a little starlike flower of bluish pink begins to shine along the ground. This is the bloom of the alfileria, and swiftly it spreads from the southern slopes, where it begins, and runs from meadow to hill-top. Soon after a cream-colored bell-flower begins to nod from a tall, slender stalk; another of sky-blue soon opens beside it; beneath these a little five-petaled flower of deep pink tries to outshine the blossoms of the alfileria; and above them soon stands the radiant shooting-star, with reflexed petals of white, yellow, and pink shining behind its purplish ovaries. On every side violets, here of

the purest golden hue and overpowering fragrance, appear in numbers beyond all conception. And soon six or seven varieties of clover, all with fine, delicate leaves, unfold flowers of yellow, red, and pink. Delicate little crucifers of white and yellow shine modestly below all these; little cream-colored flowers on slender scapes look skyward on every side; while others of purer white, with every variety of petal, crowd up among them. Standing now upon some hill-side that commands miles of landscape, one is dazzled with a blaze of color, from acres and acres of pink, great fields of violets, vast reaches of blue, endless sweeps of white.

Upon this—merely the warp of the carpet about to cover the land—the sun fast weaves a woof of splendor. Along the southern slopes of the lower hills soon beams the orange light of the poppy, which swiftly kindles the adjacent slopes, then flames along the meadow, and blazes upon the northern hill-sides. Spires of green, mounting on every side, soon open upon the top into lilies of deep lavender, and the scarlet bracts of the painted-cup glow side by side with the crimson of the cardinal-flower. And soon comes the iris, with its broad golden eye fringed with rays of lavender blue; and five varieties of phacelia overwhelm some places with waves of purple, blue, indigo, and whitish pink. The evening primrose covers the lower slopes with long sheets of brightest yellow, and from the hills above the rock-rose adds its golden bloom to that of the sorrel and the wild alfalfa, until the hills almost outshine the bright light from the slopes and plains. And through all this nods a tulip of most delicate lavender; vetches, lupins, and all the members of the wild-pea family are pushing and winding their way everywhere in every shade of crimson, purple, and white; along the ground crowfoot weaves a mantle of white, through which, amid a thousand comrades, the orthocarpus rears its tufted head of pink. Among all these are mixed a thousand other flowers, plenty enough as plenty would be accounted in other countries, but here mere pin-points on a great map of colors.

As the stranger gazes upon this carpet that now covers hill and dale, undulates over the table-lands, and robes even the mountain with a brilliancy and breadth of color that strikes the eye from miles away, he exhausts his vocabulary of superlatives, and goes away imagining he has seen it all. Yet he has seen only the background of an embroidery more varied, more curious and splendid, than the carpet upon which it is wrought. Asters bright with centre of gold and lavender rays soon shine high above the iris, and a new and larger tulip of deepest yellow nods where its lavender cousin is drooping its lately proud head. New bell-flowers of white and blue and indigo rise above the first, which served merely as ushers to

the display, and whole acres ablaze with the orange of the poppy are fast turning with the indigo of the larkspur. Where the ground was lately aglow with the marigold and the four-o'clock the tall penstemon now reaches out a hundred arms full-hung with trumpets of purple and pink. Here the silene rears high its head with fringed corolla of scarlet; and there the wild gooseberry dazzles the eye with a perfect shower of tubular flowers of the same bright color. The mimulus alone is almost enough to color the hills. Half a dozen varieties, some with long, narrow, trumpet-shaped flowers, others with broad flaring mouths; some of them tall herbs, and others large shrubs, with varying shades of dark red, light red, orange, cream-color, and yellow, spangle hill-side, rock-pile, and ravine. Among them the morning-glory twines with flowers of purest white, new lupins climb over the old ones, and the trailing vetch festoons rock and shrub and tree with long garlands of crimson, purple, and pink. Over the scarlet of the gooseberry or the gold of the high-bush mimulus along the hills, the honeysuckle hangs its tubes of richest cream-color, and the wild cucumber pours a shower of white over the green leaves of the sumach or sage. Snap-dragons of blue and white, dandelions that you must look at three or four times to be certain what they are, thistles that are soft and tender with flowers too pretty for the thistle family, orchids that you may try in vain to classify, and sages and mints of which you can barely recognize the genera, with cruciferæ, compositæ, and what-not, add to the glare and confusion.

Meanwhile, the chaparral, which during the long dry season has robed the hills in sombre green, begins to brighten with new life; new leaves adorn the ragged red arms of the manzanita, and among them blow thousands of little urn-shaped flowers of rose-color and white. The bright green of one lilac is almost lost in a luxuriance of sky-blue blossoms, and the white lilac looks at a distance as if drifted over with snow. The cercocarpus almost rivals the lilac in its display of white and blue, and the dark, forbidding adenostoma now showers forth dense panicles of little white flowers. Here, too, a new mimulus pours floods of yellow light, and high above them all the yucca rears its great plume of purple and white.

Thus marches on for weeks the floral procession, new turns bringing new banners into view, or casting on old ones a brighter light, but ever showing a riotous profusion of splendor until member after member drops gradually out of the ranks, and only a band of stragglers is left marching away into the summer. But myriads of ferns, twenty-one varieties of which are quite common, and of a fineness and delicacy rarely seen elsewhere, still stand green in the shade of the rocks and trees along the hills,

and many a flower lingers in the timber or cañons long after its friends on the open hills or plains have faded away. In the cañons and timber are also many flowers that are not found in the open ground, and as late as the middle of September, only twenty miles from the sea, and at an elevation of but fifteen hundred feet, I have gathered bouquets that would attract immediate attention anywhere. The whole land abounds with flowers both curious and lovely; but those only have been mentioned which force themselves upon one's attention. Where the sheep have not ruined all beauty, and the rains have been sufficient, they take as full possession of the land as the daisy and wild carrot do of some Eastern meadows. There are thousands of others, which it would be a hopeless task to enumerate, which are even more numerous than most of the favorite wild flowers are in the East, yet they are not abundant enough to give character to the country. For instance, there is a great larkspur, six feet high, with a score of branching arms, all studded with spurred flowers of such brilliant red that it looks like a fountain of strontium fire; but you will not see it every time you turn around. A tall lily grows in the same way, with a hundred golden flowers shining on its many arms, but it must be sought in certain places. So the tiger-lily and the columbine must be sought in the mountains, the rose and sweetbrier on low ground, the nightshades and the helianthus in the timbered cañons and gulches.

Delicacy and brilliancy characterize nearly all the California flowers, and nearly all are so strange, so different from the other members of their families, that they would be an ornament to any greenhouse. The alfileria, for instance, is the richest and strongest fodder in the world. It is the main-stay of the stock-grower, and when raked up after drying makes excellent hay; yet it is a geranium, delicate and pretty, when not too rank.

But suddenly the full blaze of color is gone, and the summer is at hand. Brown tints begin to creep over the plains; the wild oats no longer ripple in silvery waves beneath the sun and wind; and the foxtail, that shone so brightly green along the hill-side, takes on a golden hue. The light lavender tint of the chorizanthe now spreads along the hills where the poppy so lately flamed, and over the dead morning-glory the dodder weaves its orange floss. A vast army of cruciferæ and compositæ soon overruns the land with bright yellow, and numerous varieties of mint tinge it with blue or purple; but the greater portion of the annual vegetation is dead or dying. The distant peaks of granite now begin to glow at evening with a soft purple hue; the light poured into the deep ravines towards sundown floods them with a crimson mist; on the shady hill-sides the chaparral looks bluer, and on the sunny hill-sides is a brighter green than before.

COMPARATIVE TEMPERATURE AROUND THE WORLD.

The following table, published by the Pasadena Board of Trade, shows the comparative temperature of well-known places in various parts of the world, arranged according to the difference between their average winter and average summer:

Place.	Winter.	Spring.	Summer.	Autumn.	Difference Summer, Winter.
Funchal, Madeira	62.88	64.55	70.89	70.19	8.01
St. Michael, Azores	57.83	61.17	68.33	62.33	10.50
PASADENA	56.00	61.07	67.61	62.31	11.61
Santa Cruz, Canaries	64.65	68.87	76.68	74.17	12.03
Santa Barbara	54.29	59.45	67.71	63.11	13.42
Nassau, Bahama Islands	70.67	77.67	86.00	80.33	15.33
San Diego, California	54.09	60.14	69.67	64.63	15.58
Cadiz, Spain	52.90	59.93	70.43	65.35	17.53
Lisbon, Portugal	53.00	60.00	71.00	62.00	18.00
Malta	57.46	62.76	78.20	71.03	20.74
Algiers	55.00	66.00	77.00	60.00	22.00
St. Augustine, Florida	58.25	68.69	80.36	71.90	22.11
Rome, Italy	48.90	57.65	72.16	63.96	23.26
Sacramento, California	47.92	59.17	71.19	61.72	23.27
Mentone	49.50	60.00	73.00	56.60	23.50
Nice, Italy	47.88	56.23	72.26	61.63	24.44
New Orleans, Louisiana	56.00	69.37	81.08	69.80	25.08
Cairo, Egypt	58.52	73.58	85.10	71.48	26.58
Jacksonville, Florida	55.02	68.88	81.93	62.54	26.91
Pau, France	41.86	54.06	70.72	57.39	28.86
Florence, Italy	44.30	56.00	74.00	60.70	29.70
San Antonio, Texas	52.74	70.48	83.73	71.56	30.99
Aiken, South Carolina	45.82	61.32	77.36	61.96	31.54
Fort Yuma, California	57.96	73.40	92.07	75.66	34.11
Visalia, California	45.38	59.40	80.78	60.34	35.40
Santa Fé, New Mexico	30.28	50.06	70.50	51.34	40.22
Boston, Mass	28.08	45.61	68.68	51.04	40.60
New York, N. Y	31.93	48.26	72.62	48.50	40.69
Albuquerque, New Mexico	34.78	56.36	76.27	56.33	41.40
Denver, Colorado	27.66	46.33	71.66	47.16	44.00
St. Paul, Minnesota	15.09	41.29	68.03	44.98	52.94
Minneapolis, Minnesota	12.87	40.12	68.34	45.33	55.47

CALIFORNIA AND ITALY.

The Los Angeles Chamber of Commerce, in its pamphlet describing that city and county, gives a letter from the Signal Service Observer at Sacramento, comparing the temperature of places in California and Italy. He writes:

To prove to your many and intelligent readers the equability and uniformity of the climate of Santa Barbara, San Diego, and Los Angeles, as

compared with Mentone and San Remo, of the Riviera of Italy and of Corfu, I append the monthly temperature for each place. Please notice a much warmer temperature in winter at the California stations, and also a much cooler summer temperature at the same places than at any of the foreign places, except Corfu. The table speaks with more emphasis and certainty than I can, and is as follows:

Month.	San Diego's mean temperature.	Santa Barbara's mean temperature.	Los Angeles' mean temperature.	Mentone's mean temperature.	San Remo's mean temperature.	Corfu's mean temperature.
January	53.7	54.4	52.8	48.2	47.2	53.6
February	54.2	55.6	54.2	48.5	50.2	51.8
March	55.6	56.4	56.0	52.0	52.0	53.6
April	57.8	58.8	57.9	57.2	57.0	58.3
May	61.1	60.2	61.0	63.0	62.9	66.7
June	64.4	62.6	55.5	70.0	69.2	72.3
July	67.3	65.7	68.3	75.0	74.3	67.7
August	68.7	67.0	69.5	75.0	73.8	81.3
September	66.6	65.6	67.5	69.0	70.6	78.8
October	62.5	62.1	62.7	74.4	61.8	70.8
November	58.2	58.0	58.8	54.0	58.3	63.8
December	55.5	55.3	54.8	49.0	49.3	58.4
Averages	60.6	60.2	60.4	60.4	60.1	65.6

The table on pages 210 and 211, "Extremes of Heat and Cold," is published by the San Diego Land and Farm Company, whose pamphlet says:

The United States records at San Diego Signal Station show that in ten years there were but 120 days on which the mercury passed 80°. Of these 120 there were but 41 on which it passed 85°, but 22 when it passed 90°, but four over 95°, and only one over 100°; to wit, 101°, the highest ever recorded here. During all this time there was not a day on which the mercury did not fall to at least 70° during the night, and there were but five days on which it did not fall even lower. During the same ten years there were but six days on which the mercury fell below 35°. This low temperature comes only in extremely dry weather in winter, and lasts but a few minutes, happening just before sunrise. On two of these six days it fell to 32° at daylight, the lowest point ever registered here. The lowest mid-day temperature is 52°, occurring only four times in these ten years. From 65° to 70° is the average temperature of noonday throughout the greater part of the year.

FIVE YEARS IN SANTA BARBARA.

The following table, from the self-registering thermometer in the observatory of Mr. Hugh D. Vail, shows the mean temperature of each month in the years 1885 to 1889 at Santa Barbara, and also the mean temperature of the warmest and coldest days in each month:

Month.	1885.			1886.			1887.			1888.			1889.			
	Mean Temperature of each Month.	Mean Temperature of Warmest Day.	Mean Temperature of Coldest Day.	Mean Temperature of each Month.	Mean Temperature of Warmest Day.	Mean Temperature of Coldest Day.	Mean Temperature of each Month.	Mean Temperature of Warmest Day.	Mean Temperature of Coldest Day	Mean Temperature of each Month.	Mean Temperature of Warmest Day.	Mean Temperature of Coldest Day.	Mean Temperature of each Month.	Mean Temperature of Warmest Day.	Mean Temperature of Coldest Day.	Monthly Rainfall, Inches.
January...	53 2	57.0	49.5	55.0	73.5	47.5	54.67	63.5	49.0	49.0	58.7	41.0	53.0	58.0	48.8	0.29
February..	56.7	65.5	51.5	59.6	70 0	45.0	50.4	61.1	45.3	53.8	57.5	49.0	55.4	65 0	45.5	1.29
March.....	59.1	62.5	56 0	53 1	59.5	46.2	57.0	64 8	52.0	53.0	60.5	46.0	58.0	67.0	52 5	7 31
April	60.9	70.5	54.0	55.7	61 5	50.5	58.43	66.8	51 0	59.9	75.0	53.0	59.9	72.7	52.7	0.49
May	60.0	64.6	54.0	60.5	65.5	54.0	60 0	67.0	53.3	57.6	64 5	51.7	60.0	68.5	54.5	0.76
June.....	62.0	68.0	58.5	62.0	67.5	58.5	63 7	79.0	59.0	64.4	69.0	59 5	62 5	65.7	58.5	0.13
July.....	66.1	73.0	62.2	66.3	72 0	63.3	64.6	71.3	60 9	67.0	72.0	63.0	64.2	84.0	61.0	....
August....	68.0	76.0	61.5	68.2	72 0	63.2	64.8	69.7	62 0	66 3	72.0	63.5	67.3	77.0	63.0	....
September.	66 9	78.8	62 5	63 8	68 3	57.0	66.0	70.5	61.5	67.9	76.2	63.2	68.8	78.0	62.0	....
October...	63.0	72.0	58 5	58.3	62.5	51.7	65.0	74.0	59.3	63.5	76.9	59.0	63.9	70.3	60.0	8.69
November.	58.9	64.8	50.0	56 3	66.5	49 8	58.9	65.3	47.5	59.8	64.3	54.5	59.6	65.7	54.5	3.21
December..	57.2	65.7	52.0	55.8	65.8	49.5	52.8	59.6	49.0	56.5	63.0	52.0	54.4	60.7	50.0	10.64

Observations made at San Diego City, compiled from Report of the Chief Signal Officer of the U. S. Army.

MONTH.	Observations Extending over a Period of Twelve Years.									Mean normal barometer of San Diego for each month and year for four years.
	Average number of cloudy days for each month and year.	Average number of fair days for each month and year.	Average number of clear days for each month and year.	Average cloudiness, scale 0 to 10, for each month and year.	Average hourly velocity of wind for each month and year.	Average precipitation for each month and year.	Minimum temperature for each month and year.	Maximum temperature for each month and year.	Mean temperature for each month and year.	
January.....	8.5	11.2	11.3	4.1	5.1	1.85	32.0	78.0	53.6	30.027
February....	7.9	11.3	9.0	4.4	6.0	2.07	35.0	82.6	54.3	30.058
March	9.6	12.7	8.7	4.8	6.4	0.97	38.0	99.0	55.7	30.004
April	7.9	11.9	10.2	4.4	6.6	0.68	39.0	87.0	57.7	29.965
May.....	10.9	12.1	8.0	5.2	6.7	0.26	45.4	94.0	61.0	29.893
June.....	8.1	15.2	6.7	5.0	6.3	0.05	51.0	94.0	64.4	29.864
July.....	6.7	16.1	8.2	4.7	6.3	0.02	54.0	86.0	67.1	29.849
August.....	4.7	16.9	9.4	4.1	6.0	0.23	54.0	86.0	68.7	29.894
September...	4.4	13.9	11.7	3.7	5.9	0.05	49.5	101.0	66.8	29.840
October.....	5.6	12.6	12.8	3.9	5.4	0.49	44.0	92.0	62.9	29.905
November...	6.5	10.0	13.5	3.6	5.1	0.70	38.0	85.0	58.3	29.991
December ...	6.6	11.2	13.2	3.7	5.1	2.12	32.0	82.0	55.6	30.009
Mean annual.	87.4	155.1	122.7	4.3	5.9	9.49	42.6	88.8	60.5	29.942

EXTREMES OF HEAT AND COLD.

The following table, taken from the Report of the Chief Signal Officer, shows the highest and lowest temperatures recorded since the opening of stations of the Signal Service at the points named, for the number of years indicated. An asterisk (*) denotes below zero:

Locality of Station.	No. of Years of Observation.	Jan.		Feb.		March.		April.		May.		June.	
		Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
Charleston, S. C....	12	80	23	78	26	85	28	87	32	94	47	94	65
Denver, Col.....	12	67	*29	72	*22	81	*10	83	4	92	27	89	50
Jacksonville, Fla...	12	80	24	83	32	88	31	91	37	99	48	101	62
L'S ANG'LES, CAL.	6	82	30	86	28	99	34	94	39	100	40	104	47
New Orleans, La...	13	78	20	80	33	84	37	86	38	92	56	97	65
Newport, R. I.....	2	48	2	50	4	60	4	62	26	75	33	91	41
New York.....	13	64	*6	69	*4	72	*3	81	20	94	34	95	47
Pensacola, Fla.....	4	74	29	78	31	79	36	87	34	93	47	97	64
SAN DIEGO, CAL..	12	78	32	83	35	99	38	87	39	94	45	94	51
San Francisco, Cal..	12	69	36	71	35	77	39	81	40	86	45	95	48

EXTREMES OF HEAT AND COLD.—*Continued.*

Locality of Station	No. of Years of Observation.	July.		Aug.		Sept.		Oct.		Nov.		Dec.	
		Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
Charleston, S. C....	12	94	69	96	69	94	64	89	49	81	33	78	22
Denver, Col.....	12	91	59	93	60	93	51	84	38	73	23	69	1
Jacksonville, Fla...	12	104	68	100	66	98	56	92	40	84	30	81	19
L'S ANG'LES, CAL.	6	98	51	100	50	104	44	97	43	86	34	88	30
New Orleans, La...	13	96	70	97	69	92	58	89	40	82	32	78	20
Newport, R. I.....	[illegible]	87	56	85	45	77	39	75	29	62	17	56	*9
New York.....	13	99	57	96	53	100	36	83	31	74	7	66	*6
Pensacola, Fla.....	4	97	64	93	69	93	57	89	45	81	28	76	17
SAN DIEGO, CAL.	12	86	54	86	54	101	50	92	44	85	38	82	32
San Francisco, Cal..	12	83	49	89	50	92	50	84	45	78	41	68	34

STATEMENTS OF SMALL CROPS.

The following statements of crops on small pieces of ground, mostly in Los Angeles County, in 1890, were furnished to the Chamber of Commerce in Los Angeles, and are entirely trustworthy. Nearly all of them bear date August 1st. This is a fair sample from all Southern California:

PEACHES.

Ernest Dewey, Pomona—Golden Cling Peaches, 10 acres, 7 years old, produced 47 tons green; sold dried for $4800; cost of production, $243.70; net profit, $4556.30. Soil, sandy loam; not irrigated. Amount of rain, 28 inches, winter of 1889–90.

H. H. Rose, Santa Anita Township ($\frac{3}{4}$ of a mile from Lamanda Park)—$2\frac{6}{7}$ acres; produced 47,543 pounds; sold for $863.46; cost of production, $104; net profit, $759.46. Soil, light sandy loam; not irrigated. Produced in 1889 12,000 pounds, which sold at $1.70 per 100 pounds.

E. R. Thompson, Azusa (2 miles south of depot)—$2\frac{1}{8}$ acres, 233 trees, produced 57,655 pounds; sold for 864.82\frac{1}{2}$; cost of production, $140; net profit, 724.82\frac{1}{2}$. Soil, sandy loam; irrigated three times in summer, 1 inch to 7 acres. Trees 7 years old, not more than two-thirds grown.

P. O'Connor, Downey—20 trees produced 4000 pounds; sold for $60; cost of production $5; net profit, $55. Soil, sandy loam; not irrigated. Crop sold on the ground.

H. Hood, Downey City ($\frac{1}{4}$ of a mile from depot)—$\frac{1}{4}$ of an acre produced

7½ tons; sold for $150; cost of production, $10; net profit, $140. Damp sandy soil; not irrigated.

F. D. Smith (between Azusa and Glendora, 1¼ miles from depot)—1 acre produced 14,361 pounds; sold for $252.51; cost of production, $20; net profit, $232.51. Dark sandy loam; irrigated once. Trees 5 and 6 years old.

P. O. Johnson, Ranchito—17 trees, 10 years old, produced 4¾ tons; sold 4¼ tons for $120; cost of production, $10; net profit, $110; very little irrigation. Sales were ½c. per pound under market rate.

PRUNES.

E. P. Naylor (3 miles from Pomona)—15 acres produced 149 tons; sold for $7450; cost of production, $527; net profit, $6923. Soil, loam, with some sand; irrigated, 1 inch per 10 acres.

W. H. Baker, Downey (½ of a mile from depot)—1½ acres produced 12,529 pounds; sold for $551.90; cost of production, $50; net profit, $501.90. Soil, sandy loam; not irrigated.

Howe Bros. (2 miles from Lordsburg)—800 trees, which had received no care for 2 years, produced 28 tons; sold for $1400; cost of production, $200; net profit, $1200. Soil, gravelly loam, red; partially irrigated. Messrs. Howe state that they came into possession of this place in March, 1890. The weeds were as high as the trees and the ground was very hard. Only about 500 of the trees had a fair crop on them.

W. A. Spalding, Azusa—⅓ of an acre produced 10,404 pounds; sold for $156.06; cost of production, $10; net profit, $146.06. Soil, sandy loam.

E. A. Hubbard, Pomona (1½ miles from depot)—4½ acres produced 24 tons; sold green for $1080; cost of production, $280; net profit, $800. Soil, dark sandy loam; irrigated. This entire ranch of 9 acres was bought in 1884 for $1575.

F. M. Smith (1¼ miles east of Azusa)—⅜ of an acre produced 17,174 pounds; sold for $315.84; cost of production, $25; net profit, $290. Soil, deep, dark sandy loam; irrigated once in the spring. Trees 5 years old.

George Rhorer (½ of a mile east of North Pomona)—13 acres produced 88 tons; sold for $4400 on the trees; cost of production, $260; net profit, $4140. Soil, gravelly loam; irrigated, 1 inch to 8 acres. Trees planted 5 years ago last spring.

J. S. Flory (between the Big and Little Tejunga rivers)—1⅓ acres or 135 trees 20 feet apart each way; 100 of the trees 4 years old, the balance of the trees 5 years old; produced 5230 pounds dried; sold for $523; cost of production, $18; net profit, $505. Soil, light loam, with some sand; not irrigated.

W. Caruthers (2 miles north of Downey)—¾ of an acre produced 5 tons; sold for $222; cost of production, $7.50; net profit, $215. Soil, sandy loam; not irrigated. Trees 4 years old.

James Loney, Pomona—2 acres; product sold for $1150; cost of production, $50; net profit, $1100. Soil, sandy loam.

I. W. Lord, Eswena—5 acres produced 40 tons; sold for $2000; cost of production, $300; net profit, $1700. Soil, sandy loam.

M. B. Moulton, Pomona—3 acres; sold for $1873; cost of production, $215; net profit, $1658. Soil, deep sandy loam. Trees 9 years old.

Ernest Dewey, Pomona—6 acres produced 38 tons green; dried, at 10 cents a pound, $3147; cost of production, $403; profit, $2734. Soil, sandy loam; irrigated one inch to 10 acres. Sixty per cent. increase over former year.

C. S. Ambrose, Pomona—12 acres produced 77 tons; $50 per ton gross, $3850; labor of one hand one year, $150; profit, $3700. Soil, gravelly; very little irrigation. Prunes sold on trees.

ORANGES.

Joachim F. Jarchow, San Gabriel—2½ acres; 10-year trees; product sold for $1650; cost of production $100, including cultivation of 7½ acres, not bearing; net profit, $1550.

F. D. Smith, Azusa—6½ acres produced 600 boxes; sold for $1200; cost of production, $130; net profit, $1070. Soil, dark sandy loam; irrigated three times. Trees 4 years old.

George Lightfoot, South Pasadena—5½ acres produced 700 boxes; sold for $1100; cost of production, $50; net profit, $1050. Soil, rich, sandy loam; irrigated once a year.

H. Hood, Downey—½ of an acre produced 275 boxes; sold for $275; cost of production, $25; net profit, $250. Soil, damp, sandy; not irrigated.

W. G. Earle, Azusa—1 acre produced 210 boxes; sold for $262; cost of production, $15; net profit, $247. Soil, sandy loam; irrigated four times.

Nathaniel Hayden, Vernon—4 acres; 986 boxes at $1.20 per box; sales, $1182; cost of production, $50; net profit, $1132. Loam; irrigated. Other products on the 4 acres.

H. O. Fosdick, Santa Ana—1 acre; 6 years old; 350 boxes; sales, $700; cost of production and packing, $50; net profit, $650. Loam; irrigated.

J. H. Isbell, Rivera—1 acre, 82 trees; 16 years old; sales, $600; cost of production, $25; profit, $575. Irrigated. $1.10 per box for early delivery, $1.65 for later.

GRAPES.

William Bernhard, Monte Vista—10 acres produced 25 tons; sold for $750; cost of production, $70; net profit, $680. Soil, heavy loam; not irrigated. Vines 5 years old.

Dillon, Kennealy & McClure, Burbank (1 mile from Roscoe Station)—200 acres produced 90,000 gallons of wine; cost of production, $5000; net profit, about $30,000. Soil, sandy loam; not irrigated; vineyard in very healthy condition.

P. O'Connor (2½ miles south of Downey)—12 acres produced 100 tons; sold for $1500; cost of production, $360; net profit, $1140. Soil, sandy loam; not irrigated. Vines planted in 1884, when the land would not sell for $100 per acre.

J. K. Banks (1¾ miles from Downey)—40 acres produced 250 tons; sold for $3900; cost of production, $1300; net profit, $2600. Soil, sandy loam.

BERRIES.

W. Y. Earle (2½ miles from Azusa)—Strawberries, 2½ acres produced 15,000 boxes; sold for $750; cost of production, $225; net profit, $525. Soil, sandy loam; irrigated. Shipped 3000 boxes to Ogden, Utah, and 6000 boxes to Albuquerque and El Paso.

Benjamin Norris, Pomona—Blackberries, ¼ of an acre produced 2500 pounds; sold for $100; cost of production, $5; net profit, $95. Soil, light sandy; irrigated.

S. H. Eye, Covina—Raspberries, ⅝ of an acre produced 1800 pounds; sold for $195; cost of production, $85; net profit, $110. Soil, sandy loam; irrigated.

J. O. Houser, Covina—Blackberries, ¼ of an acre produced 648 pounds; sold for $71.28; cost of production, $18; net profit, $53.28. Soil, sandy loam; irrigated. First year's crop.

APRICOTS.

T. D. Leslie (1 mile from Pomona)—1 acre produced 10 tons; sold for $250; cost of production, $60; net profit, $190. Soil, loose, gravelly; irrigated; 1 inch to 10 acres. First crop.

George Lightfoot, South Pasadena—2 acres produced 11 tons; sold for $260; cost of production, $20; net profit, $240. Soil, sandy loam; not irrigated.

T. D. Smith, Azusa—1 acre produced 13,555 pounds; sold for $169.44; cost of production, $25; net profit, $144.44. Soil, sandy loam; irrigated once. Trees 5 years old.

W. Y. Earle (2½ miles from Azusa)—6 acres produced 6 tons; sold for $350; cost of production, $25; net profit, $325. Soil, sandy loam; not irrigated. Trees 3 years old.

W. A. Spalding, Azusa—335 trees produced 15,478 pounds; sold for $647.43; cost of production, $50; net profit, $597.43. Soil, sandy loam.

Mrs. Winkler, Pomona—¾ of an acre, 90 trees; product sold for $381; cost of production, $28.40; net profit, $352.60. Soil, sandy loam; not irrigated. Only help, small boys and girls.

MISCELLANEOUS FRUITS.

E. A. Bonine, Lamanda Park — Apricots, nectarines, prunes, peaches, and lemons, 30 acres produced 160 tons; sold for $8000; cost of production, $1500; net profit, $6500. No irrigation.

J. P. Fleming (1½ miles from Rivera)—Walnuts, 40 acres produced 12½ tons; sold for $2120; cost of production, $120; net profit, $2000. Soil, sandy loam; not irrigated.

George Lightfoot, South Pasadena — Lemons, 2 acres produced 500 boxes; sold for $720; cost of production, $20; net profit, $700. Soil, rich sandy loam; not irrigated. Trees 10 years old.

W. A. Spalding, Azusa—Nectarines, 96 trees produced 19,378 pounds; sold for $242.22; cost of production, $35; net profit, $207.22. Soil, sandy loam.

F. D. Smith, Azusa—Nectarines, 1⅔ acres produced 36,350 pounds; sold for $363.50; cost of production, $35; net profit, $318.50. Soil, deep dark sandy loam; irrigated once in spring. Trees 5 and 6 years old.

C. D. Ambrose (4 miles north of Pomona)—Pears, 3 acres produced 33,422 pounds; sold green for $1092.66; cost of production, $57; net profit, $1035.66. Soil, foot-hill loam; partly irrigated.

N. Hayden—Statement of amount of fruit taken from 4 acres for one season at Vernon District: 985 boxes oranges, 15 boxes lemons, 8000 pounds apricots, 2200 pounds peaches, 200 pounds loquats, 2500 pounds nectarines, 4000 pounds apples, 1000 pounds plums, 1000 pounds prunes, 1000 pounds figs, 150 pounds walnuts, 500 pounds pears. Proceeds, $1650. A family of five were supplied with all the fruit they wanted besides the above.

POTATOES.

O. Bullis, Compton—28¾ acres produced 3000 sacks; sold for $3000; cost of production, $500; net profit, $2500. Soil, peat; not irrigated. This land has been in potatoes 3 years, and will be sown to cabbages, thus producing two crops this year.

P. F. Cogswell, El Monte — 25 acres produced 150 tons; sold for $3400; cost of production, $450; net profit, $2950. Soil, sediment; not irrigated.

M. Metcalf, El Monte—8 acres produced 64 tons; sold for $900; cost of production, $50; net profit, $850. Soil, sandy loam; not irrigated.

Jacob Vernon (1½ miles from Covina)—3 acres produced 400 sacks; sold for $405.88; cost of production, $5; net profit, $400.88. Soil, sandy loam; irrigated one acre. Two-thirds of crop was volunteer.

H. Hood, Downey—Sweet potatoes, 1 acre produced 300 sacks; sold for $300; cost of production, $30; net profit, $270. Soil, sandy loam; not irrigated.

C. C. Stub, Savannah (1 mile from depot)—10 acres produced 1000 sacks; sold for $2000; cost of production, $100; net profit, $1900. Soil, sandy loam; not irrigated. A grain crop was raised on the same land this year.

ONIONS.

F. A. Atwater and C. P. Eldridge, Clearwater—1 acre produced 211 sacks; sold for $211; cost of production, $100; net profit, $111. Soil, sandy loam; no irrigation. At present prices the onions would have brought $633.

Charles Lauber, Downey—1 acre produced 113 sacks; sold for $642; cost of production, $50; net profit, $592. No attention was paid to the cultivation of this crop. Soil, sandy loam; not irrigated. At present prices the same onions would have brought $803.

MISCELLANEOUS VEGETABLES.

Eugene Lassene, University—Pumpkins, 5 acres produced 150 loads; sold for $4 per load; cost of production, $3 per acre; net profit, $585. Soil, sandy loam. A crop of barley was raised from the same land this year.

P. K. Wood, Clearwater — Pea-nuts, 3 acres produced 5000 pounds; sold for $250; cost of production, $40; net profit, $210. Soil, light sandy; not irrigated. Planted too deep, and got about one-third crop.

Oliver E. Roberts (Terrace Farm, Cahuenga Valley)—3 acres tomatoes; sold product for $461.75. Soil, foot-hill; not irrigated; second crop, watermelons. One-half acre green peppers; sold product for $54.30. 1½ acres of green peas; sold product for $220. 17 fig-trees; first crop sold for $40. Total product of 5¼ acres, $776.05.

Jacob Miller, Cahuenga—Green peas, 10 acres; 43,615 pounds; sales, $3052; cost of production and marketing, $500; profit, $2552. Soil, foot-hill; not irrigated. Second crop, melons.

W. W. Bliss, Duarte — Honey, 215 stands; 15,000 pounds; sales, $785. Mountain district. Bees worth $1 to $3 per stand.

James Stewart, Downey—Figs, 3 acres; 20 tons, at $50, $1000. Not irrigated; 26 inches rain; 1 acre of trees 16 years old, 2 acres 5 years. Figs sold on trees.

The mineral wealth of Southern California is not yet appreciated. Among the rare minerals which promise much is a very large deposit of tin in the Temescal Cañon, below South Riverside. It is in the hands of an English company. It is estimated that there are 23 square miles rich in tin ore, and it is said that the average yield of tin is $20\frac{1}{4}$ per cent.

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